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SOME COMMENTS AND SUGGESTIONS CONCERNING THE WELFARE OF THE SECTION ON OPHTHALMOLOGY*

ALBERT E. BULSON, JR., B.S., M.D.
FORT WAYNE, IND.

In assuming the position of Chairman of this Section, I desire to express my thanks for the honor that has been conferred on me, and to assure you of my keen appreciation of the compliment you have paid me in selecting me to preside over your deliberations.

To be Chairman of the Section on Ophthalmology is an honor of which one may be proud. The Section was the first one of the Association, having been organized in 1879 with less than 100 members. It has steadily grown in size and importance until it has at present over 1,200 members, who, according to the rule adopted by the Association office, are active members as a result of registration in the Section during the past five years; and if we include as members all those who hold membership in the Association and who have registered in the Section during the last ten years, the membership is over 1,700. This membership includes practically all of the prominent and progressive ophthalmologists of this country, and from the amount and character of work that has been done and is being done, the Section is entitled to rank as one of the foremost ophthalmologic societies of the world.

But the organization does not exist which is so good that it cannot be made better, and in keeping with the spirit of the Constitution and By-Laws of the Association, which prescribe the character of the Chairman's address, I shall briefly discuss some features connected with the conduct of the Section, and offer a few suggestions and some recommendations which, if adopted, in my judgment, will add to the future reputation and usefulness of the Section.

The plan of sending the printed papers to the active members of the Section in advance of the annual session at which such papers are to be presented and discussed has now been in operation six years and has proved an unqualified success. Not only has it led to the preparation of better papers, but it has given the members an opportunity to read carefully and to study thoroughly the matter to be presented by the various essayists, and has stimulated more and better discussion at the meetings. It has also given opportunity for the careful preparation of discussions in advance and eliminated in a large measure the rambling and ofttimes inapplicable discussion heard at meetings where the matter contained in papers is first presented when the authors read from their manuscripts. The belief among some that the discussion of papers that have been given to the members prior to the sessions would lead to discussions devoid of originality has not been borne out by the results, for never in the history of the Section have the discussions been as comprehensive and yet original as they have been since the adoption of the plan of distributing the papers in advance in the form of our presessional volume. In expressing a desire for a continuation of the plan, I wish to make a plea for an earlier publication of the presessional volume with a view to placing the papers in the hands of the members of the Section at least 30 days before the annual session at which the papers are to be presented. This is entirely possible if the manuscripts are in the Secretary's office not later than March 15, and any member who desires a place on the program can have his manuscript ready at the appointed time if he will start earlier with his work on it. Probably a majority of our essayists prepare papers under pressure, and are apt to procrastinate. To complete a paper a week or ten days earlier is not a matter of much concern, if it is known months in advance that the completed manuscript must be in the hands of the Secretary of the Section at a certain time.

I also desire to make a plea for more written discussions or discussions from well arranged notes on the part of those who take part in our meetings. Even the best of our members, though there are many who are concise and forceful speakers, are apt to be guilty occasionally of rambling, disconnected and irrelevant discussions if the same are given wholly extemporaneously. This has been forcibly illustrated by a comparison of the stenographer's report of extemporaneous discussions with the same after revision and extended alteration at the hands of those who gave the discussions.

The plan of appointing members to open the discussion of papers should be continued, but the appointments should be made earlier and acceptances received before the final program goes to press, and each member accepting such an appointment should consider that he is as much under obligation as the essayist and his formal discussion should be prepared with such thoroughness and comprehensiveness as the subject demands.

Notwithstanding the action of the Executive Committee concerning the rule to be followed by the officers in arranging the program for this session, I desire to express my emphatic objection to a lengthy program necessitating long hours and an added meeting on Friday morning. I know that I voice the sentiment of a large number of the prominent and active members of this Section when I say that the best interests of the Section are subserved by having a few papers well and thoroughly discussed and within such time that the members are not completely tired out or unnecessarily

* Chairman's Address before the Section on Ophthalmology at the Sixty-Second Annual Session of the American Medical Association, held at Los Angeles, June, 1911.

bored before the session closes. To continue some of our morning meetings until 12:30, and some of our afternoon meetings until 5:30 or 6 o'clock, and even then crowd out much discussion in order to complete a long program, is not conducive to the best efforts and results, and it tires the members too much, to say nothing of the officers who are in duty bound to remain until the adjournment. If the morning meeting is called at 9 o'clock, or better still at 9:30, and adjourns not later than 12, and the afternoon meeting is called promptly at 2, and adjourns at 4:30 or not later than 5, the members will have had all they can stand in the way of a scientific treat, provided the program is followed as closely as it is by the more active and interested members. Not more than five good papers can be presented and properly and thoroughly discussed within the time allowed for one meeting, and five meetings, ending with the afternoon meeting of Thursday, are sufficient to satisfy fully 90 per cent. of the members.

No paper on the program should be presented out of its order, as it is unfair to the other essayists and to the members of this and other sections generally to have the order on the official program changed, with its possible disappointment to many who have arranged attendance in order to hear certain papers. Furthermore, we should follow the very stringent rule adopted by the Section several years ago, to the effect that any member who accepts a place on the program and defaults shall not be privileged to present a paper before the Section for a period of three years, except at the discretion of the officers and Executive Committee in accepting an excuse. It is already the rule that a paper on the program not actually presented and defended by the essayist shall not be published in the transactions of the Section except by unanimous vote of the Section, and I wish to make the recommendation that we eliminate that portion of the rule which provides for any publication of the paper on the recommendation of the Section until after the paper has been actually presented before the Section. In my judgment it establishes a bad precedent to refer papers by title for publication in either the Transactions of the Section or THE JOURNAL of the American Medical Association.

If, through absence of any of the essayists, or as a result of limited discussion of papers, the program of any meeting is shortened, a subject, previously selected by the officers for such a contingency, may be offered for discussion. Undoubtedly such a feature would prove an interesting and profitable innovation. For instance, if at this meeting the program should be completed at too early an hour for adjournment, we might discuss the subject of the effect of salvarsan, or what is popularly known as "606," on the eye. Comparatively little on the subject has been written in this country, and you will note that our program has no reference to it. Other equally practical subjects might be suggested for a kind of "round table" discussion, and such a feature, it seems to me would prove very acceptable. I am told that the British Medical Association regularly gives up a part of the time of the regular program to such a feature and that it has proved a decided success.

Another portion of the surplus time, if there should be any, could be given to that part of our program which of late years has been set aside for demonstrations or the presentation of new instruments or appliances. This feature, it seems to me, could profitably take more time than we have heretofore been accustomed to give it.

Therefore, in consideration of the propriety of having fewer papers, of giving opportunity for more and better discussions, and of affording an opportunity for the introduction of other features, I desire to make the following specific recommendations: First, that the Section adopt a rule to the effect that the entire program shall not consist of more than twenty-five papers, exclusive of addresses; second, that at the discretion of the officers, and with the approval of the Section, for any unfilled number on the regular program there may be substituted a general discussion on some subject selected by the officers or proposed by some member of the Section; third, that the presentation and discussion of papers shall end with the meeting of Thursday afternoon; fourth, that if the officers and Executive Committee arrange any program for Friday the same shall be in the nature of clinical or social features; and, fifth, that no paper shall be approved for publication in the Transactions of the Section or in THE JOURNAL of the American Medical Association unless such paper has been actually presented by the essayist before the Section.

This leads me to a discussion of the merits of papers which should be accepted for the program. In such a large Section it is natural to suppose that a large number of papers will be offered for each annual program, and such is the case. For each of two eastern sessions within recent years over 140 papers were offered. The selection of a program from this large number of papers is a task for the officers and Executive Committee, and one that is not always devoid of embarrassment, owing to the difficulty of making selections from an abundance of good material. However, in the selection of papers for the programs of this Section, the utmost fairness has prevailed, and as Secretary of this Section for a period of seven years and being familiar with the action of officers and executive committees during that time, I am free to say that on every occasion an effort has been put forth not only to select papers of originality and unquestioned merit for each program, but to exhibit fairness in the distribution of favors by selecting papers with due regard to geographic location of essayists as well as age of the members. While it has been the unwritten rule, which should be continued, that mediocre maiden efforts should find no place on our programs, the young men who have in one way or another demonstrated their ability have been encouraged to offer contributions, and have met with the most cordial treatment at the hands of executive committees. Let us not forget that the ophthalmology of the future will be written by the young men of to-day, and that many of these men, because of the superior advantages and training they have in this day and the facilities that are offered for original work, are developing new truths which it should be to our pleasure as well as to our profit to hear or see demonstrated. The older and more noted men in ophthalmology do not possess all the knowledge pertaining to our specialty, and for that reason I am in favor of giving the young man of training, if not experience, a chance to be heard.

Our programs should be practical as well as scientific, and to that end demonstrations and the exhibition of charts, photographs, specimens and new instruments and appliances, should be encouraged. Whenever the Association meets where it is possible, the giving of clinics, both medical and operative, serve a useful purpose for the presentation of rare and interesting cases or the demonstration of new forms of operation or treatment. Such a feature could with propriety form the only program for Friday. This was the plan pursued at St. Louis last year, and it proved a great success, and it

was an attractive feature which many members have expressed a desire to have repeated.

A criticism that I would offer concerning the work of the Section is the lack of purely original work. Too often our programs are made up entirely of papers that are simply a review of the literature on various subjects or represent the authors' clinical experiences, or perhaps simply represent the report of what are considered interesting and rare cases. I do not wish to belittle the value of reports concerning clinical findings with appropriate deductions, for I feel that the clinical side of our work ought to receive a good share of attention, but the matter of pure investigation certainly does not receive the consideration that it deserves, and it was a recognition of this fact that in a large measure led to the establishment of the Knapp Testimonial Fund and the offering of a medal for original research work.

In this connection I wish to endorse heartily the recommendations of one of my distinguished predecessors, Dr. W. H. Wilder of Chicago, to secure collective investigation by the appointment of committees to study definite subjects of scientific and practical interest to us as ophthalmologists, and I wish to urge the committees appointed as a result of the recommendation, to continue their investigations and to make reports before this Section at stated intervals.

The recommendation of another former Chairman, Dr. A. A. Hubbell of Buffalo, that the Section consider the subject of the proper qualifications of the ophthalmologist and endeavor to secure a recognized standard for the practice of ophthalmology as a specialty, it seems to me, is worthy of more consideration than was given it at the time the recommendation was made. Concerning this subject I am in hearty accord with Dr. Hubbell when he says:

> It is unfortunate, however, that no qualifications for practice have heretofore been required of the ophthalmologist other than those of the general practitioner, but his sense of justice, his pride and his taste for the subject have stimulated him, in a large proportion of cases, to prepare himself creditably for his work. The absence of these and the presence of a dominant spirit of commercialism, have, on the other hand, caused him to make too much haste to begin his practice, limiting his study to an undergraduate course, with perhaps a few weeks in postgraduate work. He neglects taking the necessary time for study, disregards important subjects, fails to acquire personal clinical experience—in short, he is an unprepared, unqualified specialist—an ophthalmolgist only in part. Ophthalmologists are rapidly increasing in number, and the unqualified ones are also becoming correspondingly too numerous. The ophthalmologist, of course, like other specialists, should possess knowledge of his subject much more extended and complete than that of the general practitioner, and by wider observation and larger experience he should be far more proficient and skilful. Indeed, he should be an expert in this department of medicine. When, therefore, one lacks the necessary qualifications for such a position, he should not be allowed to assume it, both because of the harm he may do to patients and because of the injustice he inflicts on the rights of his neighbor ophthalmologist, who has qualified at much sacrifice of time, energy and money.
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> In order that protection may be secured against unqualified ophthalmologists, I suggest that the course and subjects of study which the ophthalmologist shall pursue be regulated by law, and that a special board of examiners shall be appointed to act alone, or in association with general boards as now constituted, to determine his fitness, and, if found qualified, to authorize a license to practice to be issued to him.

In an able paper by Dr. Edward Jackson of Denver to be presented before this Section at this session, the subject of the proper qualifications of the ophthalmologist is discussed in the closing paragraphs from which I abstract the following:

> As matters stand now, the graduate, after a scanty introduction to ophthalmology in the medical school, is permitted to pick up ophthalmic knowledge and skill here and there: from desultory reading, by study of chance cases, in the unsystematized clinics of postgraduate schools, from the courses of self-constituted teachers, and by a partial return to the apprentice system through assistantship in the eye clinic or private office.
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> This has made ophthalmologists of apt students, sufficiently conscientious to persist in the effort to obtain knowledge under difficulties. But it has also created a large number of fakers within the profession—men who pose as specialists before colleagues slightly less informed than themselves, and before the still more ignorant public. This system, which is a lack of system, has not met the legitimate needs of the profession, or the best requirements of the public. The feeling that, although a physician's license to practice gives the privilege of ophthalmic practice, it does not guarantee any fitness for such practice, has led the public to be ready to look for ophthalmic advice outside the profession as well as in it.
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> The establishment of the degree of doctor of ophthalmology, and of the course leading to that degree, in the University of Oxford points to a practical way of meeting the need of the profession and the public for some authentic evidence of fitness to practice ophthalmology. The offering of such a degree, based on requirements of graduation in medicine and evidence of special acquaintance with ophthalmic science and art, by a few of our better American universities would sweep away the false conditions, the lie in medical education, out of which the optometry question has grown. There can be no better time than to-day, and no better place than the Section on Ophthalmology of the American Medical Association, for starting a demand on the part of the medical profession for the adequate teaching of ophthalmology in all well-equipped, efficient schools of medicine.

My apology for appropriating from the presessional volume these remarks of Dr. Jackson, is that the presentation of the subject in the manner indicated is entirely in accord with the views I had in mind in entering on a discussion of the subject, and I desire to take this occasion not only to endorse all that Dr. Jackson says but to suggest that this Section should recommend some standard of qualifications which shall be recognized as entitling a physician to the title of ophthalmologist.

The question of having a noted foreigner as a guest of honor of the Section is one that has met with varying degrees of approval from active members of this Section. We have been favored by having as our guests, and hearing addresses from, such distinguished men as Haab, Hirschberg, Ramsey, Hess, Collins and Parsons. They have added to the richness of our literature, and their presence has been an inspiration as well as a social feature which has given pleasure and profit to those who were fortunate enough to hear and see them. The advisability of having a guest of honor every session may be questioned, as also the effort to secure a guest for any particular session at the expense of numerous invitations which bring regrets. At the request of the Chairman, and with the approval of the Executive Committee, an invitation in the name of the Section was extended consecutively in one year to four noted ophthalmologists in Europe, only to bring regrets in each instance. The following year I heard it intimated by some of our European confrères that an invitation to be the guest of the Section on Ophthalmology was not difficult to obtain, inasmuch as invitations were distributed freely. To be the guest of this Section, representing practically

all of the prominent and progressive ophthalmologists of the United States, and to receive honorary membership in the American Medical Association as one of the rewards, should not be an honor to be looked on lightly, and our invitations should not be so numerous or extended so promiscuously as to encourage the belief that the honor is a common one. Our efforts should not be to secure a guest at any cost, but to secure a guest who is entitled, through his standing as an ophthalmologist, to distinctive honor by the American ophthalmologists, and who in turn will, by his presence and the part he takes in our proceedings, stamp his visit as an event of scientific and social importance in the history of the Section. Furthermore, an invitation to be the guest of this Section should not be extended unless we are reasonably certain that the one who is to be invited will accept the invitation with the intention of fulfilling the obligation. The expense of entertainment of the guest while attending the session of the A. M. A. should be met by the Section and not by the officers and a few prominent members who are always ready to contribute in order to show our guests proper hospitality. Once in two or three years is often enough for us to have a guest of the Section as a feature of any session.

The Knapp Testimonial Fund, proposed and inaugurated by my immediate predecessor, Dr. W. C. Posey

The Knapp medal of the Section on Ophthalmology.

of Philadelphia, and myself, is a feature which it seems to me is pregnant with great possibilities in advancing the welfare of the Section. At the St. Louis session the purposes of the fund and the plans for its use were outlined and the same were approved unanimously by the Section. As is now well known, the fund is raised by voluntary pledges of varying sums from those members of the Section who are sufficiently interested to contribute a definite amount each year. Quite a large number of the members have become contributors on the understanding that they are to give a definite sum each year, but I regret to say that all those who ought to contribute to the fund have not done so, though probably this is due to an oversight rather than a lack of desire to aid an exceptionally worthy cause. I desire to urge every member of the Section to give something, even though it is no more than one dollar per year, and the fund will not grow too large for the purposes under consideration. In fact, I am distinctly in favor of efforts to secure, if possible, sufficient funds to established a principal, the income from which will be enough to enable us to carry out the plans already adopted.

It was proposed that the Knapp fund should be maintained and used essentially for the purpose of stimulating research work and encouraging the highest type of scientific contributions in the field of ophthalmology. To this end it was decided to procure a medal, to be known as the Knapp Medal of the Section on Ophthalmology, and offer the same to invited as well as uninvited contributors to the Section on Ophthalmology for original work in ophthalmology, or for some contribution of such a highly meritorious character in the field of ophthalmology as will warrant the granting of a medal as a special recognition. It was also proposed to use a portion of the fund for the granting of a money prize to be used in carrying on any original investigations at the instance of the Section. It was further proposed that a portion of the fund should be used to meet the expenses of the Scientific Exhibit and various practical demonstrations. Provision was also made for minor expenses not already provided for by the Association in promoting the welfare of the Section.

The plan as outlined was approved by the Section, and the officers and Executive Committee were made a committee to carry out the purposes as outlined. In conformity with the action of the Section, I have the pleasure of exhibiting a design for a medal to be known as the Knapp Medal of the Section on Ophthalmology, to be offered annually for purely original work in ophthalmology, which shall be presented before this Section and be deemed by a committee, appointed for the purpose, worthy of special recognition. It is proposed that the medal shall be made of gold, and that on the reverse side shall be engraved the name of the recipient of the medal, the date when the medal was presented, and for what it was granted. It is also proposed that but one such medal be offered, that one contribution only shall receive a medal in any given year, and that the medal be not granted in any year unless the contribution offered in competition for the medal shall be of such a distinctly meritorious character as to meet with the approbation of the committee appointed to pass on the merits of such contribution. It is also proposed that the sum of $100 be set aside annually to be used, on the recommendation of the Section and at the discretion of the committee, to further research work carried on by order of or under the direction of the Section, but that no second appropriation be made until the first one shall have been exhausted.

In furthering the purposes as outlined, I desire to recommend that the Secretary of the Section, when sending out his annual announcements, shall include a printed circular calling attention to the medal and prize, and the conditions under which they are bestowed.

Since our last session death has removed from our ranks a large number of prominent members, among whom I may mention: Drs. A. W. Calhoun of Atlanta, A. R. Baker of Cleveland, and Leartus Connor of Detroit, all ex-chairmen of the Section. Others who were prominent and active members of the Section and who have died within the past year are: Drs. Charles Stedman Bull of New York, Henry Gradle of Chicago, Charles A. Oliver of Philadelphia, C. J. Kipp of Newark, N. J., and Herman Knapp of New York. To each and all of these deceased members the Section owes much of its success, for they labored to bring the Section to its present standing as the foremost ophthalmologic organization in this country.

In preparing the program for this year the officers of the Section have met with some disappointment in having withdrawals at the last minute and a few of the essayists whose papers appear in the presessional volume have, in consequence of sickness or other equally valid

excuse, been prevented from being present. There are, however, enough papers to engage our attention for the time at our disposal, and I am satisfied that the discussion will prove interesting and profitable to all. It is with pleasure that I welcome you, old members as well as new, in this garden city of the Pacific Coast where the most cordial and generous hospitality has been extended to us, and I bid you take up the Section work that is before you with an earnestness and thoughtfulness which presages a profitable and pleasant session.

219 West Wayne Street.

AN EPIDEMIC OF CHANCRES OF THE LIP FROM KISSING

JAY F. SCHAMBERG, M.D.
PHILADELPHIA

The following epidemic is a distressing instance of the innocent transmission of syphilis.

A coterie of young men and women, varying in age from 16 to 22 years, gave a minstrel performance as a benefit. Following this, a party, and later a banquet, were given at which juvenile kissing games were indulged in. One of the participants, a young man of 22, had a sore on his lip, the nature of which he avers he did not know. Six young women kissed by him developed chancres of the lip. A young man present at the affair likewise developed a chancre of the lip apparently from the virus deposited on the lips of one of the young women, for he did not come into contact with the original source. In addition, a young woman kissed by the offender at a third social function likewise developed an initial sclerosis, making in all eight labial chancres from the one source.

The matter was called to the attention of the Department of Health of Philadelphia by a physician under whose care three of the patients came. Dr. Joseph Neff, the director of the department, asked me to investigate the outbreak. Further study brought to light knowledge of the remaining cases.

The original offender was apprehended by a detective and brought to the health department quarters in City Hall. I examined the young man and secured the following history: The patient first noticed a sore on the left side of the lower lip about Feb. 12, 1911; March 3, he consulted a physician who, according to the statement of the patient, did not inform him of the contagious nature of the lesion. The physician on being interrogated declares that he advised the young man to take all precautions; there is, therefore, a question of veracity between the patient and his physician.

March 4, the patient attended an evening party at which kissing games were played and at which most of the young women were infected. March 18, he attended a banquet, after which similar osculatory games were indulged in.

At the time of my examination, about June 20, he presented the remains of a chancre of the lower lip, pronounced tonsillar ulceration with mucous patches, and a maculopapular eruption over the trunk.

There is no law in this state specifically giving the right to the health authorities to deprive a syphilitic of his liberty during his period of infectivity, but there is an old law of almost a century ago empowering the board of health to quarantine a person who is known to be spreading a contagious disease. This patient had so carelessly spread a serious disease that the authorities felt called on to prevent further infection. With the patient's consent he was taken to the municipal hospital and an intravenous injection of salvarsan given. Had the patient refused, he would have been quarantined.

The data concerning the unfortunate patients who innocently contracted syphilis are as follows:

CASE 1.—A young woman, aged 20, developed a sore on her lip in the early part of April and on the fifteenth of that month consulted a physician, who found an indurated lesion both on the upper and lower lip and marked adenopathy. The nature of the lesion was recognized by the physician and the patient was immediately placed on treatment. She later developed tonsillar ulceration, mucous patches and some eruption on the trunk. When I examined her later, she had tonsillar ulceration and the remains of the labial chancre. July 8 the Wassermann was strongly positive. She was given an intravenous injection of salvarsan.

CASE 2.—A young woman, aged 18, was examined by me June 24. The site of infection, which was on the right side of the upper lip, still showed some activity of the process. There was a circular, deep-red lesion about 1.5 cm. in diameter, with convexly elevated borders and a cicatricial depressed center. A slight induration was still present. Both of the submaxillary glands were enlarged, but the intumescence was greater on the right side. This patient was kissed several times by the offender March 18. On account of the appearance of his lip she permitted the liberty with reluctance and wiped her own lip afterward with a handkerchief. July 8 a Wassermann reaction was strongly positive. The patient was given an intravenous injection of salvarsan.

CASE 3.—A young woman, aged 19, states that she developed a "sore" towards the end of April on her lower lip where she had had a fissure. The lesion was about twice the size of a pea. The maxillary glands and glands of the neck were enlarged. She consulted her physician and was placed on mercurial inunctions. When I examined her July 1 there was a split-pea-sized deep-red discoloration at the site of the chancre on the lower lip. A Wassermann reaction was strongly positive. She was given an intravenous injection of salvarsan.

CASE 4.—A young woman, aged 16, first noticed a sore on her lip about April 13 and visited her physician one week later. She had a lesion on the left side of the lower lip which was diagnosed by the attending physician as a chancre. There was an enlargement of the submaxillary glands. She was placed on mercurial treatment. When I examined her but little of the lesion could be observed. A Wassermann reaction was strongly positive. She was given an intravenous injection of salvarsan.

CASE 5.—A young woman, aged 18, stated that her lip was noticeably sore about March 25. The lesion was situated on the right side of the lower lip and was never larger than a pea. It was crusted on the external half and covered with a whitish pellicle on the moist part of the lip. The lesion was properly diagnosed by her physician and the patient placed on mercurial treatment. When I examined her June 28 the site of the chancre was deep-red, shining and slightly elevated. The submaxillary glands were still somewhat enlarged.

CASE 6.—A young man, aged 20, was present at the party and took part in the kissing games. In the early part of April he noticed a hard sore on the center of the upper lip. He states that he had the habit of biting his lip. His physician diagnosed chancre and placed him on mercury internally and sodium cacodylate hypodermically. When I examined him June 27 he exhibited the remains of the chancre on his upper lip. The lesion was convexly elevated, about the diameter of a cherry, and of a shining deep-red color. On the mucous aspect of the lip was a whitish pellicle. The maxillary and submaxillary glands on both sides were markedly enlarged. The patient stated that he had had a rash on the chest, but that this had disappeared. There was swelling and ulceration of the tonsils with mucous patches present. Spirochetes were found in the lip lesion and a Wassermann reaction was positive. An intravenous injection of salvarsan was given.

CASE 7.—A young woman, aged 18, was not at the party referred to, but was kissed later by the same osculatory young

man. Her physician informs me that she consulted him for a chancre of the lip which healed through the use of the biniodid of mercury.

Case 8.—A young woman, aged 18, was also infected. My knowledge of this patient is merely from hearsay, as I have not been able to see her. I am told by those who saw her that she had a very conspicuous sore on the lip in the early part of April. She stated that her physician "burned it out." She was at the party and was kissed several times by the young man with the labial chancre.

Five or six other young women at the several social functions were kissed by the young man with the labial chancre, without contracting syphilis. Of those who developed chancres, four had no knowledge of any abrasion on the lips prior to infection, one had a fissured lip, and one was in the habit of biting his lips. Of the seven chancres examined by me, four were on the lower lip, two on the upper, and in one case both lips were involved. In the case of the young man who contracted a chancre, there is reason to believe that he acquired the infection from virus deposited on the lips of one of the young women by the original disseminator. The source of the chancre of the lip in the original patient could not be definitely determined, but, inasmuch as the young man was given to frequent and promiscuous kissing, it is presumed that the disease was contracted in this manner.

Chancre of the cheek of several months' duration, presumably contracted indirectly from one of the young women with chancre of the lip.

Case 9.—Since writing the above I have been consulted by a 20-year-old young woman employed in the same establishment and brought into close contact with two of the patients with chancre of the lip, who presents a well-defined chancre on the right cheek below the malar bone. This first developed in April after the appearance of the labial sores in her associates. At the present time (July, 1911) there is a deep-red, firm, elevated placque about 1½ c.m. in diameter, with a slightly depressed cicatrical center. The submaxillary glands are enlarged. The patient and her physician state that she had some eruption on the trunk which disappeared under the administration of mercury. This patient handled telephone trunk cords which were used by the patient described in Case 1. She states that she scratched a "pimple" on her cheek and the present lesion developed at the site. She was not kissed by the two young women with chancres of the lips, and had never come in contact with and, indeed, did not know the young man who was the source of the extragenital epidemic. The exact manner in which the infection was carried to this patient cannot be affirmed but it is reasonable to believe that it was derived from one of the young women with a lip chancre.

This most unfortunate epidemic should teach a lesson which cannot too strongly be impressed on the public, i. e., the danger of promiscuous kissing, either between those of the opposite or the same sex. This should be taught as a matter of every-day hygiene. In the second place, physicians must recognize that a tremendous responsibility rests on them in safeguarding the public from luetic patients under their care. Too often the instructions given to patients suffering from syphilis are perfunctory and unimpressive, if not omitted altogether. This epidemic likewise emphasizes the intense infectivity of extragenitally located chancres swarming, as they do, with spirochetes.

1922 Spruce Street.

LINGUAL, SUBLINGUAL AND OTHER FORMS OF ABERRANT THYROIDS *

CHARLES H. MAYO, M.D.
ROCHESTER, MINN.

The common expression that "Man is as old as his blood-vessels" is no longer tenable. We now know that his growth and his manifest age depend more on the glands of the body which control function and metabolism, as well as the vessels themselves.

Inasmuch as the importance of the duct and the ductless glands is now known to us, we see why there should be, proportionately, so few anomalies among them in comparison with those in less important structures of the body.

It is becoming more and more apparent that of the various ductless glands the thyroid is one of the most important in its control of the body metabolism, as well as in the maintenance and stimulation of function in many of the associated glands. While various diseases or changes in its structure are fairly common, marked anomalies are exceedingly rare.

The first consideration in the study of the anomalies of this gland is the observation of development of the structure from the earliest embryonic stage. Usually the thyroid is considered as being developed from three anlage; the superior from the pharynx or mouth area is developed with the tongue which is in three portions; the anterior three-fifths, all in front of the circumvallate papilla, in fact, is formed from a median single body. The posterior two-fifths of the tongue is formed in halves, and at the center of union of these three portions, a tubular depression is developed with the bilobed thyroid anlage at its base, from which tissue the greater part of the gland is formed. As stated by most embryologists, this structure descends to unite at the seventh week with the lower anlage, one on either side, which has developed in the fourth branchial furrow. The hyoid bone is apparently developed at about the fifth week, and crosses the line of the descending thyroid.

The hyoid in its development entangles 40 odd per cent. of thyroids in their descent, causing a stringing out of the thyroid tissue to a variable degree. This portion, when present, is commonly known as the parimedial lobe and connects with the isthmus or the left upper pole.

The tube which developed as a consequence of the descent of the thyroid is known as the "thyroglossal

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

duct." It is lined with a temporary pharyngeal epithelium, and apparently is a phylogenetic remnant of the excretory duct of the thyroid which still persists in certain of the invertebrate animals; for example, the sea scorpion, the limulus or king crab, etc., in which, the thyroid being a true sex gland, the duct empties into the uterus or the genital tract (Gaskill). This duct is not lined with thyroid epithelium in man, but with fetal pharyngeal mucosa which undergoes obliteration more or less completely, the remains of its upper extremity being marked by the depression or opening at the back of the tongue, known as the "foramen cecum." In anomalies in which there is a failure of obliteration of this duct, or in which portions of true pharyngeal mucosa are carried down by it, are found the midline cysts of the upper cervical region. These are not true branchial cysts, but thyroglossal duct cysts filled with mucoid material. Being remnants of the embryologic development, they retain power of generation and growth when operated on unless every vestige of the structure is removed. In several cases we have seen such cysts open through a delicate foramen in the center of the hyoid bone where it had been grapsed by the developing hyoid.

Fig. 1.—Lingual thyroid.

Fig. 2.—Lingual thyroid seen in cross section.

Thyroid tissue completely separate from the rest of the gland is usually described as aberrant, while if it is at all connected with the main thyroid it is called an accessory thyroid. The anomalies of the lower portion of the gland are fairly common, being seen probably once in fifty thyroid operations for simple goiter. Aberrant thyroids, found laterally, we have observed with much less frequency. Small accessory and aberrant thyroids between the hyoid and isthmus of the thyroid are relatively common.

I have seen but three lingual thyroids; one in a boy of 18 years, in whom the growth had been present for six years; one in a woman of 46, which had been noticed for several years, and one in a woman of 63, which had been present about two years (Figs. 1 and 2). The latter case presented both types of lingual and sublingual; the superior upper portion was the size of a large walnut, while the inferior lingual tumor was nearly as large.

In corroboration of the views of those embryologists who believe that the bulk, if not all, of the thyroid has developed from the pharyngeal anlage, it is of interest to note that in approximately one in seven of the cases, patients operated on for lingual thyroid develop myxedema. It is probable that some cases

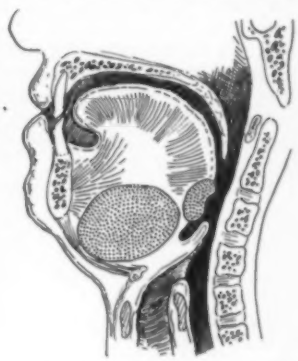


Fig. 3.—Lingual and sublingual thyroids. (From Priestly Leech, *The Medical Annual*, 1906.)

It may be seen readily then, that a delayed descent of the thyroid from its lingual position, or an early formation of the hyoid, might force the development of this portion of the thyroid into the lingual or the sublingual area.

His, and other embryologists, formerly believed that the lower poles of the thyroid were developed in the fourth branchial grooves, but in His' later work he is more doubtful concerning this point and is inclined to believe, with some others, that there is a possibility of these lower centers developing tissue which later disappears, but which resembles the so-called suprapericardial bodies of the vertebrates. However, if it is true that these bodies are thyroids, it would explain some of the anomalies of the lower portion of the gland; for example, aberrant or accessory thyroids beneath the sternum or within the upper chest. Such tissue might occasionally be dragged to this position by the thymus gland, which forms one notch higher, namely, in the third furrows, and descends to a point behind the sternum.

were reported too early after operation to give any accurate information in regard to this point, and that in others only the cystic portion was enucleated, leaving a part of active thyroid.

I believe that a careful examination of the thyroid region should be made before operation in order that a less extensive removal of tissue will be made if there is no palpable thyroid, treating the tumor by shelling out the cyst interior rather than by the more radical removal of all the tissue.

It is very probable that stray portions of the thyroid are of frequent occurrence and are not recognized since there may be no pathologic change occurring in the aberrant portion to make its presence known by tumor formation.

In the diagnosis, the suprahyoid or the midline tumors must be differentiated from malignant disease of the glands of undiscoverable primary origin, from thyroglossal duct cysts, from dermoids, ranula, lingual tonsils, etc. In some instances this will be determined only by operation.

Free hemorrhage has been noted as a symptom in some of the reported cases. The thyroids in the tongue, as seen in the supralingual, are usually rounded tumors covered with thin mucosa with numerous veins coursing over the surface. Their prominence is between the epiglottis and the foramen cecum (Fig. 3). The slowness of the growth, in consideration of the richness of the blood-supply in this area, usually eliminates malignancy. Angiomas are differentiated by being more spongy, more irregular in outline, of purple color and usually showing venous extension to one of the lateral pharyngeal areas.

When tumors are found in the lingual and the sublingual positions in the same patient they may be removed, if preferred, in two stages, first, from a hyoid transverse incision with separation of the muscles, similar to ordinary goiter operations (this operation leaves less scar than the vertical); later, enucleation of the upper portion from the tongue, as was done in our third case.

In the enucleation of lingual thyroids the tongue and pharyngeal areas are cocainized, the patient anesthetized with ether and a rapid operation made while the tongue is held in extreme tension. The free hemorrhage is controlled by deep sutures. In very extensive superior lingual goiter it may be advisable occasionally to ligate the lingual arteries and make a laryngotomy as a preliminary procedure. It will rarely be necessary to divide and separate the lower jaw.

While the operations for the removal of lingual thyroids through the mouth have been quite bloody, they have been successful; practically no fatalities have been reported. Although there have been approximately but fifty cases recorded, undoubtedly there have been many others in which patients have been operated on.

Case 1.—A woman, aged 46, came for examination in 1893. There was a tumor on the dorsal posterior surface of the tongue. An operation was performed under local and general anesthesia. A blunt dissection was made and the cystic colloid thyroid was removed. Recovery followed.

Case 2.—J. D., male, aged 18, was admitted to the hospital, June 1, 1896. An examination showed a blood-tumor at the base of the tongue of about six years' standing. The patient spoke with difficulty. The diagnosis was: A tumor on the posterior part of the tongue next to the epiglottis. The operation consisted in making a temporary division of the jaw at the symphysis of the tongue and in excising the growth. Recovery followed. Pathologic report was "adenosarcoma."

Case 3.—Mrs. J. W. H., aged 63, on examination Nov. 15, 1910, was found to have a growth at the base of the tongue, which had been first noticed as a small lump eighteen months before. Two months previously the growth had become noticeable and troublesome, because of a feeling of fulness. There was no pain, but there were headaches after any exertion. A tumor was found in the posterior one-third of the dorsum of the tongue, the size of a hen's egg. There was a subcutaneous tumor (slightly smaller) under the chin. The diagnosis was of lingual thyroid.

Nov. 21, 1910, the operation, consisting of the enucleation of the lingual thyroid from the submental region, was performed, and two weeks later the superior lingual tumor was removed through the mouth. Recovery followed. Pathologic report was "aberrant thyroid with bone deposit."

Unclean Operators.—Each pitiful, infected, suppurated, fever-burned, doctor-poisoned victim, remarks Dawbarn in the *Medical Record*, like a gaunt specter, brings back to our thoughts with hideous clearness what surgery was before the surgeon knew better. He knows better now. To-day the man who operates unclean of person or appliance is unclean of soul.

THE TREATMENT OF LATERAL CURVATURE OF THE SPINE

ROBERT W. LOVETT, M.D.
AND
JAMES WARREN SEVER, M.D.
BOSTON

For many years the treatment of lateral curvature has been considered a muscular problem to be met by muscular therapeutics, that is, by gymnastics. Although this treatment has been on the whole successful when properly carried out in the functional and milder structural types of the affection, it has been on the whole distinctly unsuccessful in the treatment of the moderate and severe types of scoliosis. The reason for this is that the treatment of the severer types of the affection is a bone and not a muscle problem, and must be carried out by means of sound surgical principles addressed to the reshaping of distorted bone. The treatment to be advocated in the present paper is based on these principles, and the results of the treatment are shown as carried out for three years in the lateral curvature clinic of the Children's Hospital, Boston.

There are two varieties of lateral curvature, (1) the postural or functional, and (2) the organic or structural. The first variety can be quickly discussed and laid aside, for it is the second variety which constitutes our real problem.

FUNCTIONAL OR POSTURAL LATERAL CURVATURE

The former is really nothing but a faulty attitude, and the latter would be a better name for it. The child, who is generally from 5 to 15 years old, stands with a slight or very moderate lateral curve of the whole spine, in most instances to the left. The left shoulder is higher than the other, and the trunk is displaced to the left, uncovering the right iliac crest and making it more prominent than the left. There is no marked rotation or twisting of the curved region, but when the child bends forward from the hips and the trunk becomes horizontal, the right side of the back of the thorax can be seen to be very slightly higher than the left. The curve disappears when the patient lies down.

The condition is often associated with round shoulders and round back, and where statistics have been taken regarding it, it has been found to occur in from 20 to 25 per cent. of children of school age. The curve is always single, and compensatory curves do not exist. It is sometimes described as total scoliosis, which should be interpreted as being synonymous with functional or postural scoliosis.

Two mistakes are frequently made in dealing with this condition. In the first place, the curve is so slight that it is frequently overlooked, and second, if it is recognized, the parents are frequently told that the child will outgrow it. There is no reason for overlooking the existence of any postural curve, because it is perfectly simple to hang a plumb-line in the cleft of the buttocks and see if the spinous processes form a straight line and come under that plumb-line. If they deviate in a gradual curve, total scoliosis exists.

With regard to the second point, so far as observations go, there is no tendency to the spontaneous outgrowth of the condition. It is extremely common in adults, and the tendency of growth is entirely toward an increase of the deformity rather than toward a straightening of the spine. Such cases frequently change to the structural type in the process of growth, double curves forming out of single ones; but such cases do not as a rule change

to the severe type of structural curve, so that having recognized the existence of a postural lateral curve, the parents should be told that it will probably increase somewhat, will undoubtedly persist into adult life unless efficiently treated, but will probably not cause serious or disabling deformity.

TREATMENT

The treatment is simple. The general hygiene should be looked into, overwork at school and at home prevented, and if the resistance of the child is below normal the day should be shortened slightly by a period of recumbency during the day.

The question of clothes is an important one and should be investigated. Most children of this age wear a waist with shoulder straps which rest near the tips of the shoulders. To this waist are attached the clothes, and also side elastic garters running to the stockings, which are kept very tight. The tension of these elastics is transmitted by the waist to the straps over the shoulders, and the shoulders are continually pulled downward and forward. Round garters should be substituted for side elastics in these cases, the clothes suspended from the waist should be as light as possible, and in many instances they may be supported from a belt.

If there is any reason to suspect a visual error leading to an improper position in reading, the eyes should be examined and such error corrected. It is advisable in all instances to go into the question of a short leg, not by a measurement from anterior superior spine to the internal malleolus, which is of little practical value and often misleading, but by placing under the foot on the side to which the spine curves enough pamphlets to raise the pelvis on that side and see if an improved position of the spine results. If it does, a higher sole should be worn on that side with a view to inducing a constant improvement in the spinal position.

With these preliminaries taken care of, the treatment should consist of a special set of gymnastics which are within the range of any good teacher of gymnastics, consisting practically of a setting-up drill similar to that given to army recruits. Such patients should exercise daily for half an hour or an hour under the supervision of the teacher until they can maintain a symmetrical position for a few minutes, when they can be allowed to do the exercises at home under the supervision of a parent, and report for observation. The gymnastic work should be individual and class work discouraged.

The daily active treatment should generally not cover a period of more than from one to three weeks under favorable conditions, but the observation period should last for at least a year. Under these conditions the prognosis for a complete cure is excellent, but exercises must be done with precision and vigor, and the general condition of the child must be regarded.

These cases may then be dismissed from our consideration and we can pass to our real problem—the treatment of structural lateral curvature.

ORGANIC OR STRUCTURAL LATERAL CURVATURE

This is accompanied by changes in the spinal structure, with deformity in the vertebræ. The phenomena cannot be reproduced experimentally, and the condition is outside of the normal behavior of the spine and implies structural change. Severe cases in childhood are due to one of five causes.

1. A congenital anomaly of the spine, such as split vertebræ, defective ribs, etc., a class of cases only recently recognized as so important, and until the general use of the *x*-ray not generally understood.
2. Infantile paralysis.
3. Empyema.
4. Rickets.
5. A softness of the bones which we must assume without direct evidence of rickets, but in which bony deformity is so great that it is evident that the bony resistance is below the normal.

The characteristics of organic lateral curvature are definite curves, either single or double—more often the latter—and much more marked than in the postural class, in some cases running to extreme deformity. There is always a rotation of the vertebræ or horizontal twist at the site of the curve, and in bending forward, with the trunk horizontal and the arms hanging, there is always to be seen a more or less marked upward bunch or prominence in the affected region on the side to which the spine curves, that is, on the convex side of the lateral curve. If the curve is double, there are two rotations corresponding to the two curves. This is a constant characteristic, and is diagnostic of this type of curvature. A right curve has always a right prominence and *vice versa* on the other side. The curve does not disappear on lying down, and the *x*-ray shows a deformity of the vertebræ, with compression of the intervertebral disks on the concave side, and in the more advanced cases, with a wedge-shaped deformity of the vertebræ. Distortion of the figure, the elevation of one shoulder, the prominence of one ilium, a general displacement of the body to the side, etc., are the results and expression of this bony spinal deformity.

It must be clearly recognized that these are the cases that present the difficulty in treatment, the vertebral column in these cases being deformed to some extent, with the changes mentioned, namely, shortened ligaments and muscles, compressed disks, and, in the severe cases, wedge-shaped vertebræ. In addition to these deformities to the side, the vertebræ twist on a vertical axis and are thus distorted along with the ribs and the bony structures of the thorax, which share in the deformity in severer cases. These changes in the lateral and in the horizontal direction result in distortion of the viscera, compression of the lungs, displacement of the heart and disturbance of the abdominal viscera, which in severe cases predispose to impaired digestion, deficient chest capacity, and in general to impaired resistance, so that it is safe to say that as a rule patients with severe scoliosis in adult life are badly nourished and have an impaired resistance. Extreme deformity may result in the severest cases.

TREATMENT

Having thus defined very briefly the essentials of the condition, we come to the very difficult question of how such cases should be treated. As the keynote of the treatment to be advocated, we must recognize that bone is an adaptive structure, and in its growth follows the line of least resistance, and we must remember also that we are dealing with a lateral bony deformity of the spine. Putting these two considerations together, it would seem as if our best chance of remedying the bony deformity was to force the spine into as normal a position as can be obtained, and to hold it in that position during part of the period of growth. This is, in brief the treatment that will be advocated.

The majority of such cases in this country, as a matter of fact, are at present treated by gymnastics, and one rarely sees a bad case in which this treatment has not

already been pursued and has failed. There are, apparently, two reasons for this. First, the treatment by pure gymnastics is inadequate for any but slight and moderate cases, and therefore unsuited to the treatment of severe cases, and second, in general it is ineffectually given, because the average medical gymnast thinks if he gives a treatment which he has reason to believe is proper, his responsibility ends; he does not measure the efficiency of his treatment by the results. If gymnastic treatment is to be given for cases of more than slight grade, let it be given as it is in Europe, where a patient goes to an institute and lives, abandoning school and family, works for several hours a day in specially constructed apparatus, spends perhaps hours in a recumbent position, and pursues this treatment for month after month under the supervision of skilled assistants. Under these conditions one may expect results from gymnastic treatment in properly selected cases; but contrast that treatment with what is generally given here as the gymnastic treatment, an exercise period perhaps three times a week with the patient under no supervision in the meanwhile and wearing no apparatus, the treatment interrupted by home demands, illness and other conditions, followed out in a half-hearted way for some months and finally abandoned. It is not reasonable,

Figure 1.

Figure 2.

Fig. 1.—Remodeled torso ready for application of jacket, in a case of right dorsal left lumbar scoliosis which has been cut in two at the waist and set apart 1 inch, so as to increase the upward pressure on the ribs. The dark areas on left of the torso show where plaster has been added on the concave side to allow for correction of displacement and deviation.

Fig. 2.—Front of jacket made over torso shown in Figure 1. Note shoulder pad.

under these conditions, to expect much from the gymnastic treatment.

If we look at the facts from a general surgical point of view, the condition seems to be as follows: A deformity analogous to knock-knee exists between each two vertebræ. We would not in a child of 8, for example, expect to cure knock-knee by an hour's muscular exercise given three times a week or oftener, while the rest of the time, except during sleeping, gravity is at work to exaggerate the condition. Our knowledge of the principles of general surgery would not allow us to sanction such a treatment, but it is allowed and sanctioned in an analogous deformity affecting the spine.

Moreover, not only does gymnastic treatment in the severe grade of cases as a rule do no good, but if effectually carried out, it does harm up to a certain point by loosening up a stiff spine and allowing the spine to sag farther into the bad position. A spine with severe lateral curvature soon becomes stiff and gets slowly worse, but if it is loosened by effective gymnastics, the side thrust of the superincumbent weight is so great that it becomes rapidly worse and the patient's average standing position is worse than before treatment was begun.

The rule should be, therefore, either (1) not to use gymnastics alone in any but slight cases, (2) to keep the patient recumbent until the gymnastics have developed muscles as well as restored flexibility, or (3) to use a support in connection with gymnastics to hold the improved position.

The use of gymnastics alone in lateral curvature of the spine should be limited to the slighter grades of structural curves. Such gymnastics should obviously have two aims, (1) to restore flexibility, and (2) to cultivate the holding power. The exercises should be done with vigor and precision for at least an hour daily, and they are to be regarded as effective only so long as

Fig. 3.—Patient in jacket shown in Figure 2. Note window on concave side. Jacket reinforced by steel strips.

they produce manifest improvement. Gymnastic treatment should be stopped temporarily if the patient loses weight, becomes irritable or languid, or if the menstruation in girls becomes profuse. The gymnastics to be used are to be found in the text-books on orthopedic surgery and in certain French and German books devoted to the subject.[1] Until the medical profession insists on the adequate and careful performance of gymnastic treatment and limits it to suitable cases it will fall into even greater disrepute than now.

Recognizing then the need of attacking moderate and severe lateral curvature as a bone problem, we advocate

1. Wilbouchewitch: Gymnastique. orthopédique, Paris, 1903 Mikulicz and Tomas Cwzewski: Orthopädische Gymnastik., Jena, 1904. Lovett, R. W.: Lateral Curvature of the Spine, Phila., 1907. Klapp: Funktionäle Behandlung der skoliose, Jena, 1910.

a treatment analogous to that universally recognized as effective in the cure of congenital club-foot, namely, securing a proper position of the deformed structures and maintaining this position until the bones are reshaped by growth. In the treatment to be advocated for this grade of lateral curvature, no more attention in the beginning is paid to the muscles than is the case in the treatment for club-foot, which is a radical departure from accepted views.

A curious experience directed our attention to the possibility of this method. A girl with severe lateral curvature applied at the Children's Hospital for treatment. A forcible plaster jacket was applied and an *x*-ray of the spine in the corrected position taken through windows cut in the jacket. The girl was instructed to return in two weeks to have the jacket changed. Instead of returning in fourteen days, she stayed away fourteen months and came back wearing the same jacket. The improvement in her position at the end of this time was extraordinary, and an *x*-ray of the spine taken at the second visit showed an improvement in the bony curve. This suggested a treatment which has been followed out in modified form during the last three years.

For moderate and severe structural lateral curvature the treatment is of two kinds, either (1) by the use of a permanent corrective jacket worn for long periods, or (2) in its modified form by the use at first of a corrective jacket followed by a removable jacket and exercises.

Fig. 4.—Girl aged 16, before treatment.

Fig. 5.—Girl aged 17, after fourteen months' treatment by removable jackets without exercises.

Fig. 6.—Boy aged 12, before treatment.

Fig. 7.—Boy aged 14, after two years' treatment by means of permanent jackets.

Permanent Jackets.—The first form, the permanent forcible jacket, is better suited to hospital practice than the other. We have for two years been taking cases of similar grades in the clinic and treating some by one method and some by the other, as a result of which we have come to the conclusion that the treatment by permanent jackets produces better results. The treatment by permanent jackets is as follows: Either in recumbency or in suspension a jacket is applied to the patient, securing the best obtainable position without the use of high degrees of force. At first we used the recumbent position with considerable amounts of force, but in hospital practice sloughs occurred, and if much force was used, occasionally trouble with respiration followed, and experience has shown us that we can obtain the same efficiency without the risk by the use of smaller degrees of corrective force in the initial jacket put on in suspension.

When the jacket is hardened, it is left solid over the parts that are made prominent by the rotation behind and in front, that is, in a right dorsal curve the right back and left front are not touched, but large windows are cut over the depressed side of the chest behind and the corresponding portion diagonally opposite in front, so that in a right dorsal curve the left side would be cut out behind and the right side in front. This makes it possible for the depressed parts of the chest to be expanded by respiration, while the prominent parts are compressed. Pads of felt are now inserted between the prominent part of the chest behind and the jacket, and sometimes in the corresponding region in the front, thus making the jacket more corrective, and thicker pads are substituted each week without changing the jacket, these being drawn through without difficulty by means of a bandage. In this way, a continual diagonal side-pressure is kept up on the curved portion of the spine and is steadily increased. At the end of two or three months, it will be found that it is advisable to apply a new jacket, to cut it out in the same way and to begin on the progressive padding. The use of such a permanent jacket is continued for a period of from one to two years, being changed at long intervals, and at the end of this time a removable jacket is substituted for the permanent one and gymnastic treatment is begun. The removable jacket is then gradually discontinued while the patient's muscular condition is being improved by gymnastic exercises.

Removable Jackets.—As in the former method, the second treatment, that by removable jackets, is started by the application of a forcible jacket either in recumbency or suspension. This is followed by a second jacket at an interval of a week. After the application of the second jacket, the patient is suspended and a plaster jacket is applied which is immediately cut off to serve as a mold, and a third forcible jacket is applied to be worn while the removable apparatus is being made. The jacket which is to serve as a mold is then bound together and filled with plaster of Paris and water, a torso thus being obtained. This torso is then remodeled by cutting off on the prominent side and building up on the other side, until it has become decidedly more symmetrical than the patient. It is also sawed in halves at the waist and set apart about an inch in order to secure continued extension.

On this corrected torso a plaster jacket is applied which is to be the removable jacket worn by the patient. This removable jacket should be supplied with shoulder pads to hold the shoulders in position, and should open down the front, being supplied with buckles and straps or lacings. It may also be advisable to slash such jackets over the iliac crests. The addition of 5 per cent. Portland cement to the plaster with which the jacket is made gives greater strength and durability. This jacket is to be worn by the patient night and day and to be removed only for the exercise period, which should consist of one hour or more daily, the exercises being of the type mentioned above. When the jacket is applied, it is sprung open and slipped on the patient, who then lies on the back, and the arms and legs are pulled on to extend the spine. It is then buckled tightly in place before the patient stands up.

Jackets of either kind should be tested for efficiency by measuring the height of the patient with and without the jacket. Without the jacket the patient places the hands on the hips and pushes up, making himself as tall as possible, and his height is taken in this position. The jacket is then applied and the patient's height is again taken. If the jacket does not hold him in as good a position, as estimated by height, as the patient can possibly assume with the hands on the hips, it is discarded and a more corrective one is made. In these jackets it is often advisable to cut the windows as in the permanent form, and to use padding in addition to the correction of the torso.

If such a jacket is worn by a patient who is making good progress, in a few weeks from the beginning of treatment it will be found to be inefficient and not to be holding him on account of his improvement. Under these conditions the torso must be again remodeled, more cut away from the prominent side and greater pressure exerted. In the course of a year, probably two or three such remodelings would be required. These jackets may be made of leather or celluloid if preferred rather than plaster, but the plaster is perfectly efficient, although heavier.

This treatment is more acceptable than the former to private patients, and where the patient is under complete control, it is probably nearly as efficient as the other, although perhaps taking a little longer time. When such treatment as the latter has been continued over a period of a year or more in the severer cases, a trial may be made of removing the jacket for a short period each day and watching the patient during this period, the jacket being gradually abandoned as the patient's corrective power increases. In neither form of treatment in severe scoliosis is the treatment likely to last less than two years, although in the moderate forms it may take less time to secure the desired results.

Finally, it may be well to meet two criticisms which are likely to be made. In the first place, the results are presented by photographs, patients unconsciously pose, shadows distort, and the method is not scientifically accurate. At the same time, in this clinic we have tried many other methods of measurement, including the Schultess machine for recording lateral curvature, and after a careful trial of each we have returned to photographs as, on the whole, the most reliable and practical method of presenting results.

Fig. 8.—Girl aged 16, before treatment.

Fig. 9.—Girl aged 18, after two and one-half years' treatment by means of a series of permanent jackets.

In the second place, the criticism will be made that the results that we show are not necessarily permanent. This treatment has been used by us, for too short a time for us to be able to produce in this series, definite evidence that the results are permanent. In answer to this criticism, it can only be said that bone is an adaptive structure; that we have seen a change in the bony curve under this treatment as demonstrated by the *x*-ray; that the Chinese woman's foot is deformed permanently by pressure; that the shape of the bones in club-foot is permanently altered and restored to normal by pressure; that experimentally, bony lateral curvature was produced by Wullstein in dogs; that in the cases under observation longest the results have tended to be permanent, and

finally, that Schanz of Dresden from a similar treatment has shown the persistence of good results for one or two years after the cessation of treatment. It is possible to state that if the treatment is stopped half way, immediate relapse follows and nothing is gained, but if the treatment is persisted in until the end and gradually discontinued, it seems likely that the results obtained will be permanent.

234 Marlboro Street.

MILD CASES OF HOOKWORM DISEASE IN CHILDREN

THOMPSON FRAZER, M.S., M.D.
ASHEVILLE, N. C.

One of the first results of the systematic study of any disease is the discovery that, in addition to the so-called typical cases, there are many others so mild in character that they are at first entirely overlooked. To many, no doubt, hookworm disease at once suggests a picture of extreme pallor and emaciation, with considerable edema and a hemoglobin percentage of thirty or under; it is less well known that one may harbor hookworms and that their presence may be entirely unsuspected. After the removal of the worms by a course of thymol, the patient will often gain rapidly in weight and strength (and, if a child, in height), showing that, though the effect of the parasites on nutrition is at times slight, it should not be disregarded.

Fig. 1.—Four children of one family treated for hookworm disease. These children show little evidence of symptoms of the disease.

Fig. 2.—Two girls treated for hookworm disease. The taller is 11 years of age; the smaller girl, who is much stunted in growth, is 15 years of age.

Fig. 3.—Two victims of hookworm disease whose symptoms are more marked than those of the other children shown.

I present the pictures of a few of the children treated this winter and spring for uncinariasis at the Asheville Free Dispensary. I have purposely selected the milder cases.

Figure 1 shows four children of one family; they are, respectively, 3½, 6, 8 and 12 years of age. The two larger children are quite healthy in appearance, the others although not so robust do not appear sickly. The size and weight of each compares favorably with the norm. In none of them were there digestive disturbances, edema or pallor; and the hemoglobin ranged between 85 and 95 per cent.

Figure 2 is of interest in that some of the more characteristic features of the disease are shown. The taller girl, aged 11, is not undersized and might have been included in the first picture but for a somewhat sickly expression and a languid manner. The smaller girl, nearly 15 years of age, is very much stunted; the breasts are undeveloped and the mentality low. Note the prematurely aged expression of her face.

In Figure 3, the appearance of ill health is more marked. The boy, aged 16, has a heavy, stupid expression, and has suffered with headache and "stomach trouble" for several months. The little girl, aged 10, is dwarfed mentally and physically, she takes no interest in her studies, does not care to play and seldom smiles. The hemoglobin percentage of those shown in Figures 2 and 3 was between 65 and 80.

All of the children that I have been able to follow up have shown marked improvement in a few weeks. I gave them from one to three thymol courses and then put them on Blaud's pills and the results have been more than satisfactory. The teachers testify that after the thymol treatment many of the youngsters were transformed from dullards into normal, mischievous children.

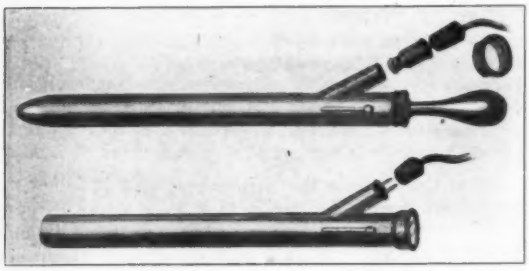
A NEW PROCTOSCOPE AND SIGMOIDOSCOPE

DUDLEY ROBERTS, M.D.
BROOKLYN, N. Y.

Those who have used the various types of proctoscopes and sigmoidoscopes know that each has certain advantages and disadvantages. The instrument known as the Kelly tube, depending on a headlight for illumination, is the simplest and cheapest. With it the upper rectum and sigmoid are often examined with great difficulty. The examiner is forced to assume an exceedingly awkward position in order to line up his eye, the light and the long tube. Instrumentation with this method of illumination is difficult, as the instrument and hands interfere with the light. The light cannot be satisfac-

torily thrown through the window such as is used to close the proximal end of the tube in effecting distention with air.

The use of tubes which are arranged with a small electric light on the distal end has meant a marked advance in our knowledge of the upper rectum and sigmoid. The chief objection to this method of illumination is the frequency with which the small lamp or its



New proctoscope and sigmoidoscope.

protecting capsule of glass becomes smeared with feces or other discharges. This necessitates the withdrawal of the speculum or the light-carrier and sometimes an annoying delay in the examination. The lumen of the examining tube is encroached on by the light, and its carrier or an accessory tube applied along the outside makes the passage of the speculum more uncomfortable. The tiny electric lights with their especially made bases are easily burned out, causing considerable annoyance and in the long run some expense.

A wonderfully satisfactory illumination is secured by the new principle of lighting examining tubes herewith described. As illustrated, a flat-faced metal filament lamp, having the standard miniature base, is snugly held in a tube which projects at an agle of thirty degrees from the main tube. The inside of the main tube is heavily plated and highly polished with lines of polish running lengthwise of the tube. The lamp-holding tube is of exactly the same size in all instruments and the same lamp-carrier serves for any number of instruments. Owing to the manner of polishing no light is thrown back into the eve from the walls of the tube, all the rays going to the distal end. The light is carried brilliantly to and even several inches beyond the end of as long a tube as could possibly be of practical use.

Entrance into the sigmoid is occasionally facilitated by inflation of the bowel or puffing aside obstructing folds of mucous membrane. In this instrument the glass window is made the full size of the lumen of the tube and does not obscure the view in the least. The metal collar which holds the glass screws on to the end of the tube, making a perfectly air-tight joint. To the small offset tube a small hand-bulb is attached when inflation is to be used. These features are necessary or useful in only a comparatively small proportion of cases and are not used on the tubes which are spoken of as proctoscopes.

The end of the obturator is much less blunt than in previously made instruments. Bluntness is not necessary for safety, as it is customary to withdraw the obturator after effecting an entrance through the anus and then to make farther entrance into the rectum by sight. It is quite remarkable how much more easily this olive-shaped obturator passes through the anal canal than do the older blunt-ended obturators.

As the illumination of the distal end depends on the polish of the inner wall of the tube it is essential that some care be taken to keep the inside clean and free from tarnish. The easiest and best way of doing this is to force a narrow towel through the lumen, the first part of the towel being moistened with soapy water. The dry part is later pulled back and forth through the tube until a satisfactory polish is reestablished. Although not absolutely necessary it is well to make it a habit to clean the inside in this way each time after sterilization.

Three styles of the instrument are made. Two short tubes differing in caliber are designated as the large and small proctoscope. These are simpler than the tube illustrated, having no appliance for inflation. Either of these cheaper forms of instruments will be found satisfactory in the large majority of cases where high examination of the sigmoid is not to be attempted. The third style, designated as the sigmoidoscope, differs from the others in its greater length and parts added for air dilatation.

Only practical experience with these instruments could possibly convince one of the remarkable illumination secured and of the ease with which thorough examination and instrumentation can be accomplished in all cases.

84 Remsen Street.

CARDIAC DILATATION AND DISPLACEMENT DUE TO PLEURISY

EVAN O'NEILL KANE, M.D.
KANE, PA.

The following history, with accompanying illustration, demonstrates how completely the heart can be

Patient, 19 years old, suffering from cardiac displacement due to pleurisy.

displaced into the right side and still for many years perform its function. Indeed, in this case, the mere displacement itself seemed to produce little or no discomfort. Death was indirectly due to the cardiac dilatation, and compensatory failure was not pronounced until late in the case.

History.—The patient, M. S., a girl aged 19, was of Swedish descent, with light complexion, and "scrofulous." The family history was generally good. She weighed over 14 pounds when born, and was healthy and vigorous until 7 years old. At that time she contracted "a severe cold on the lungs," causing shortness of breath. The family physician opened the pleural cavity, from which a large amount of pus was evacuated. For eleven years there was a continuous drain; consent to operation for radical cure was refused by the family. During a period of one year before death, the wound remained closed. Although greatly deformed and retaining the childish type of figure, the patient otherwise developed fully so that, until the great emaciation during her last months had wasted her, the arms and legs were strong, of full size and well proportioned. Mental development was rather above the ordinary; she had passed all the grades in public school up to the third year of high school.

Examination.—The heart was displaced entirely over to the right side of the sternum and filled the whole upper right side of the chest, being crowded up under the clavicle, the apex-beat striking sharply and being visible in the third right interspace, between the middle and outer third. Apparently, there was no lung-tissue above the heart, nor were respiratory sounds audible behind, until the lower part of the scapula was reached. The entire respiratory act seemed to be performed by the lower and middle lobes of the right lung. The left lung had atrophied.

Course of Disease.—Dilatation, though caused partly by the pulmonary obstruction, was also, to no small extent, due to the overexertion incident to school life. The patient lived two miles from school and had to climb a hill to reach it. During winter season the snow drifts were often three feet deep, yet, she scarcely missed a day. During the last winter of her life, the distress caused by swelling of her limbs and breathlessness forced her to abandon her studies. Death resulted from an intercurrent catarrhal pneumonia of probably influenzal origin that terminated in pulmonary edema. No autopsy was procured.

THE ELICITATION OF THE KNEE-JERK

AUGUSTUS A. ESHNER, M.D.
PHILADELPHIA

In addition to common and accepted methods of eliciting the knee-jerk, including that described by Dr. Curran Pope,[1] I have found two procedures useful in this connection. The one consists in supporting the leg to be examined on an inclined plane, while the patient is seated, the inclination being susceptible of variation in accordance with the requirements of the individual case. (Fig. 1.) By this means, relaxation of the lower extremity is secured independently of the volition of the patient, and the limb can be placed in a position most favorable for the development of the reflex. This device is particularly useful in the case of obese individuals and of those persons, old or young, who are either unable or unwilling to cooperate with the examiner, or who oppose or resist his efforts.

Fig. 1.—Leg supported on inclined plane, while patella tendon is struck with plexor and hand is applied over quadriceps extensor tendon.

The second procedure consists in the application of the palmar surface of the index-finger of one hand over the patellar tendon and striking the dorsal surface of this finger with a percussion-hammer or with the opposite clenched hand. (Fig. 2.) In this way a slight contraction of the tendon can sometimes be felt when it cannot be seen and when the leg is not thrown forward in extension.

Fig. 2.—Leg supported on inclined plane, with finger applied over patella tendon and to be struck by plexor.

When there is doubt as to the presence of the knee-jerk, it is useful also to apply the palmar aspect of one hand over the quadriceps muscle or its tendon, while the patellar tendon is struck with a plexor or with the ulnar margin of the other hand (Fig. 1).

Under any of the circumstances mentioned, it is best in attempting to elicit the knee-jerk to bare the knee entirely, so that the stimulating blow is applied directly to the cutaneous surface overlying the tendon.

1019 Spruce Street.

1. Pope: THE JOURNAL A. M. A., June 10, 1911, p. 1705.

SOME LESSONS DRAWN FROM A SERIES OF TWENTY-EIGHT EXTERNAL OPERATIONS ON FRONTAL SINUS AND ETHMOID LABYRINTH *

HENRY HORN, M.D.
SAN FRANCISCO

Having determined that an external operation on the frontal sinus and ethmoid labyrinth is necessary, there seems to be no question but that the terribly mutilating, truly radical operation of Riedel, with its complete destruction of the supra-orbital ridge, is the one which gives us the greatest certainty of a cure. The resulting deformity is so great that the operation is scarcely ever carried out to-day, but the Killian operation, or some of its modifications, is substituted.

* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

In Riedel's operation[1] there are no dead spaces left behind; in Killian's operation,[2] the dead spaces, with their subsequent difficult drainage, constitute that element of doubt which does not allow us always to promise a certain cure. Admitting the necessity of an external operation in any given case, how are we to overcome this intrinsic objection of dead space which is the weak point in an otherwise ideal operation?

In presenting the present series, I do not do so because of the number or the very satisfactory results which have been obtained, but because I think that certain lessons can be derived from this group of cases, and also because I believe I have something to offer, not only in the way of getting quicker and more lasting results, but of limiting the severity and extent of the operation and overcoming the problem of drainage of the dead spaces, which is the weakness of the Killian operation.

The simplest way to classify cases of chronic suppuration of the frontal sinus and ethmoid labyrinth is as follows: First, cases with cerebral or orbital complications which should all be operated on by the external method, and second, the vast majority of patients who come to us with headaches and pus discharge.

Most patients in this last class can, by intranasal methods, either be completely cured or their headaches relieved and the discharge reduced to what I take the liberty of designating a "specialist's minimum"—an amount of discharge which a well-trained rhinologist can control without danger to the patient over a long period of time. With this result the patient may be satisfied, the true surgeon never. I am not altogether certain my coinage of the phrase is a happy one, but I use it in contradistinction to the often-used expression, "safe minimum," meaning thereby that the patient can go on for the rest of his life with such a discharge without danger, an idea which Gerber[3] has shown to be false and dangerous.

There are many patients who are not in a condition to have constant attention even over a period of a few weeks. There may be considerations of time, finance and geography, that may cause what one might designate the sociologic operative indications to outweigh the clinical indications. The sociologic factor is more to be considered in America than in Europe. There the universal insurance system for workmen allows patients to remain away from work for weeks at a time. They lose nothing by it and their families are provided for. In every large city there are well-equipped special clinics, and the country districts are always within easy reach of the cities. In America, distances are great, insurance is unknown and clinics are scarce. The patient must be cured quickly, safely and radically.

During the last few years, an interesting wave of uncertainty has swept over the minds of European rhinologists in regard to the indication for the Killian operation. Since Gerber's book[3] appeared in the fall of 1908, reporting thirty-six postoperative deaths, there have been added not less than ten cases of the same kind.

This new chapter of postoperative, fatally terminating complications is the basis of this uncertainty, and that master of rhinologic technic, Hajek, has given the matter much serious study. His two recent fatal consecutive cases have altered his viewpoint of a few years ago. They occurred in cases in which no danger-signal appeared previous to the operation; they came at a period of his career when his operative experience was ripe, and nothing was neglected in the way of technic. Six days after the operation the first patient died of an intradural abscess; the second patient on the third day of a septic meningitis.

A study of such cases, so conscientiously reported, is the only means which give us a basis for improving our technical skill or reducing the mortality. The autopsies have impressed on us the one pregnant point—that the complications had their origin, not in the operated area, but in some overlooked ethmoid cell, some other neglected accessory cavity, especially in some area of pus which *had not been drained away*, and which had given rise to an area of infection.

These bitter experiences teach us not to neglect any possible method of determining the condition of the accessory cavities before the operation, and that perfect and constant drainage after the operation is the only protection which to my mind has been developed in recent years. These two prime requisites can be fulfilled by measured negative pressure alone.

Fig. 1.—Right-sided Killian operation, with very large frontal sinus, necessitating vertical incision to hair line.

Fig. 2.—Same case as Fig. 1 after injecting large quantities of paraffin.

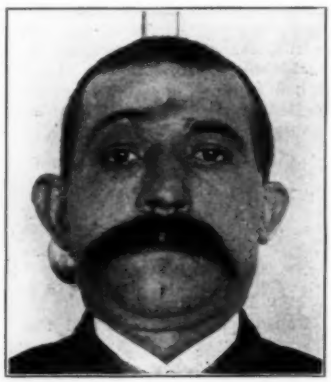


Fig. 3.—Extensive deformity after Killian operation, subsequently entirely filled out with paraffin.

1. Riedel: Dissertation, Publiziert durch Schenker, Jena, 1898.
2. Killian: Arch. f. Laryngol., 1902, xiii.
3. Gerber: Die Komplicationen der Stirnhöhlenentzündungen, S. Karger, Berlin, 1909.

Although originally designed as an aid in the after-treatment,[4] I have come to regard measured negative pressure as the most important accessory aid in the clinical diagnosis of accessory cavity disease, followed in the order of their importance by the *x*-ray and transillumination. By means of my differential method[5] with tampons and aristol combined with gradually increasing measured pressure,[6] one can exclude every cavity but the one under consideration; can determine whether the ethmoid cells are involved alone or in conjunction with the frontal; can tell whether the frontal alone is involved, whether the diagnostic washing out of the frontal sinus actually took place or whether an anterior frontal cell was entered; can differentiate between pus in the frontal sinus or a pus process grafted on a catarrhal process. These points can all be determined previous to the operation and give us a great increase in security.

The greatest protection which we have against a fatal termination, and the greatest security for an absolute cure, is the preliminary intranasal work, which, if possible, should extend over months. All ethmoid cells, as far as it is possible to reach them from the nose, should be cleaned out. The diseased sphenoid and the antrum should be opened and if possible cured. The second and equally important requirement is that the operation should be carried out as radically as possible, so that no fragment of diseased mucous membrane, no single ethmoid cell shall remain behind. This proposition I urged three years ago,[7] and was based on the fact that I had had no mortality and that my results were unusually good. I only too clearly recognize the fact that my experience has been limited, and although since then I have not changed my method or ideas, I am directly at variance with Hajek, who, as I said, influenced by his two unfortunate cases, now urges that the mucoperiosteal lining of the roof of the ethmoid labyrinth be allowed to remain, *even at the cost of the thoroughness of the operation.*

Hajek[8] even asserts that such an incomplete operation will have no influence on the final outcome of the case, or at any rate will not disturb the patient as long as sufficient drainage is afforded. With this view I cannot agree, and in three of my cases in which I was forced to reoperate, the findings were proof positive that ultimate recovery would have been impossible.

The very reasons which Hajek gives for considering this retention of pyogenic mucous membrane a protection would, if we can believe the findings of my autopsies *in vivo*, in all probability have led to future severe trouble. In fact, Gerber[3] has proved that many cases of uncomplicated frontal sinus disease have, as a result of a Killian operation, finally terminated fatally, and this to my mind because of the incompleteness of the operation.

Hajek draws his conclusions from a series of about forty cases, while my experience is based on about thirty. He holds with Gerber[3] that a large number of the fatal cases have their origin in an injury or a complete exposure of the roof of the ethmoid labyrinth and the lamina cribrosa. I do not believe in the protecting power of this diseased mucoperiosteal lining of the roof of the ethmoid labyrinth, which is supposed to act as a protection against intracranial complications, but that we must place our reliance from the very first on perfect drainage. Such drainage is only possible after the removal of the gauze at the end of forty-eight hours, by the use of negative pressure.

I maintain that in my twenty-eight cases in which a cure took place, in seven of them in from five to eight days after the operation, in twelve cases from ten to fourteen days after the operation, and in three cases in less than three weeks after the operation, the results could only be obtained, first and foremost, by the most radical and exact operation, and second, by the use of negative pressure during the after treatment to secure perfect drainage.

In those of my patients who were not absolutely cured, and on whom I reoperated, overlooked ethmoid cells were always at the bottom of the trouble, and the sad lesson was always forced on me that every time my lack of boldness or of a retention of too much of the processus frontalis, a miser's greed in sparing the mucous membrane of the nose, or a timidity in attacking the tiny cells deep down on the roof of the ethmoid labyrinth, resulted in a temporary failure.

In any case in which after operation the mucous membrane is seemingly dry, and even after repeated inspection carried out over a number of days shows a drop of pus by suction, the cure is not complete, but some vagrant ethmoid cell has been left behind which is the cause of the trouble and may necessitate months of expensive and nerve-racking treatment.

In one double-sided operation, in which the patient had complained for years of violent right-sided frontal headaches, a curious phenomenon was observed, the only thing of the kind I have ever had the opportunity of noticing. In making a preliminary examination by suction, it was noted that the physiologic limit for negative pressure was lower on the right side than the left.

The physiologic limit is a term I have used to designate the height of pressure which each patient can bear with comfort, or a point at which bleeding begins to take place from the mucous membrane of the nose. Although the physiologic limit for bleeding may vary with the two sides of the nose, depending on the pathologic conditions present, the limit for discomfort has always been about the same for the two sides. In this case, however, the patient complained of much pain coming on with 6 cm. less pressure on the right side than on the left.[9] As the patient expressed it, she felt as if her brain was being "drawn out." At the operation the angle between the floor and the roof of the ethmoid labyrinth was unusually narrow, perhaps 80 per cent. smaller than in the ordinary case. In removing the cells, a dehiscence of the roof was noted about 0.5 by 1 cm., through which the dura showed clear and glistening. There was no pulsation and it was difficult to make out at first whether I was dealing with dura or not. In spite of Hajek's warning, however, the roof was thoroughly cleaned off. Whether this dehiscence was operative, as some of the visitors present maintained, or whether it was preoperative, I could not determine. During the after-treatment, however, the same phenomenon was always observed; the right side was 5 to 6 cm. more sensitive than the left. After about six weeks the sensitiveness entirely disappeared.

This case teaches us two things: First, in all probability the dura on the roof of the ethmoid labyrinth is

4. Horn: Die Behandlung operierter Nebenhöhlen, Verhandl. d. Ver. deutsch. Laryngol., 1909.
5. Horn: The After-Treatment of Operated Accessory Nasal Cavities, Ann. Otol., March, 1910.
6. Horn: A Method for the Determination of Pus in Diseases of the Accessory Cavities of the Nose, California State Jour. Med., February, 1911.
7. Walb and Horn: Ueber Saugbehandlung bei Erkrankungen der Nebenhöhlen der Nase, Ztschr. f. Ohrenh., xlii, No. 1.
8. Hajek: Die Behandlung der Empyeme der Nasennebenhöhlen, Ztschr. f. Laryngol., 1910, ii, No. 5.

9. The apparatus for determining negative pressure is fully described by me in the Ann. of Otol., March, 1910, and can be obtained from V. Mueller & Co., Chicago.

no more sensitive to infection than the dura on the roof of the tegmen tympani. Who would think of leaving a fragment of diseased mucous membrane in a radical mastoid operation because the tegmen was paper-thin? The dura is exposed in a large percentage of such cases and cerebral complications rarely follow. Second, this lowering of the physiologic limit for discomfort on the diseased side may lead to a method whereby we may suspect, preoperatively, a dehiscence of the bony wall.

Before concluding, there are a number of minor points to which I wish to draw attention in passing, although I have nothing original to add in the matter.

The uselessness of the retention of a nasal mucous membrane flap has long ago been decided on. If I am not mistaken, Killian himself has given it up.[10] In my series I never attempted but twice to carry out this procedure and before the operation was completed I saw that during the subsequent dressings the flap would be apt to come loose and therefore snipped it off. I do however believe and my contention is borne out by at least one European observer, that the use of the negative pressure in the after-treatment seems to have a tendency to inhibit the formation of granulations around the drainage openings. At least I have never yet had to snare or burn away any exuberant granulations in my cases.

The question of the necessity of a primary suture of the external wounds is still an open one.[11] The more conservative operators, Hajek and Killian, contend that even when no intracranial complications are present, but when the pus is unusually foul and dangerous-looking, a secondary suture would be the safest plan. In all of my cases the wounds were closed with a primary suture with the exception of one in which I experimentally did a secondary suture. The cosmetic result was good, but not the perfect result that in the ordinary case I now consider a *sine qua non*. In the case already mentioned with the dehiscence, I did, with some misgivings, a primary suture, but I considered my drainage absolute, and the necessity of a perfect cosmetic result must be considered in the case of a young woman.

In my first few cases I took great pains to spare the attachment of the trochlearis.[12] Now I pay no attention to the matter and in my series had but one temporary diplopia which lasted less than a month. There are often series of small ethmoid cells which extend down almost to the foramen of the optic nerve and which are concealed unless a very free dissection of the orbital contents is made by first loosening the attachment of the trochlearis. In one of my reoperated patients, when I had taken the greatest pains to do a very radical operation, a feeling of pain behind the eye combined with the appearance of a few drops of yellow pus, shown only by suction, led to the discovery at the second operation of a single row of six to eight ethmoid cells filled with small polypoid masses, almost surrounding the upper half of the edge of the optic foramen.

In but two of my cases did I find it necessary to use paraffin to overcome the sinking of the supraorbital space. The frontal sinuses in both cases, as you can see by the illustrations, were exceedingly extensive and deep, extending almost to the hair line. In one, a perpendicular incision was necessary to thoroughly eradicate all the dead space. Very extensive paraffin injections brought about most satisfactory results.

10. Von Eicken: Erfahrungen mit der Killianschen stirnhöhlen Operation, 1 Internat. Otologic Kong., Vienna, 1908.
11. Zarniko: Die Krankheiten der Nase, S. Karger, Berlin, 1910.
12. Eschweiler: Arch. d'otol., October, 1904.

In conclusion I wish to emphasize the fact that I look on the Killian operation as a very serious procedure; that the indications for its performance are narrowing instead of broadening; that it should never be undertaken without a thorough preliminary intranasal preparation carried out for weeks or even months before the operation; that if possible the diseased sphenoid and antrum should be previously healed.

My present operative indications are distinctly distasteful to my operative inclinations. Intracranial complications should of course all be operated by the external route. If in the other class, in which headaches and pus are the dominant factors, we cannot heal the lesion by intranasal methods, and if there are no sociologic contra-indications, we can allow the patient to stay under observation with a discharging sinus and some slight headaches.

209 Post Street.

THE VARIOUS PATHOLOGIC CONDITIONS INVOLVING THE FRONTAL SINUS*

B. R. SHURLY, M.D.
DETROIT

Nature has provided a most elaborate series of air-spaces in her construction of the bony labyrinths of the head. This plan of animal engineering is a structural necessity in vertebrates of aerial locomotion (birds). It is a design of great comfort and utility to the more developed species that assume the more erect posture.

The frontal sinuses may be classified as a part of this general plan of human machinery that demand the qualities of lightness in the construction of the head with a maximum of protection to the skull-case with the properties of resonance and lubrication to the upper air-passages. The structural units of the body are marvelous in their response to the laws of use and disuse or supply and demand, and we find that the frontal sinuses develop and enlarge extensively at puberty. As the subject of this paper is diseased states of the frontal sinuses, it is unnecessary to dwell at length on details of anatomy, yet it should not be forgotten that certain unusual structural findings exert their anatomic influence on the pathology.

Cryer has pointed out to this Section many interesting conditions relating to the abnormal morphology of the frontal sinuses. The absence of sinuses, the presence of septa, wide variations in contour and dimensions, absence of bony walls, presence of ethmoid cells within the sinus, variations in thickness of the structural bone and anomalies of the frontonasal duct may be mentioned as a few of the anatomic discoveries that may influence the pathologic conditions, the surgical indications and therapy in this region.

The physiologic phenomena of the nasal passages are in close relationship to many pathologic conditions in the frontal sinuses. Hyperemia, intumescence, and hypertrophy of the mucosa and turbinates are frequent attendants or etiologic factors of sinus disease.

To discuss the problems of pathologic conditions involving the frontal sinus comprehensively it is necessary to establish several distinct classifications. We find immediately on investigation that the frontal sinus (as we should expect) shares with the other accessory cavities in a number of pathologic processes that are common to all.

* Read in the Section on Laryngology, Otology and Rhinology of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

It is only within the present century that frontal sinus disease has been recognized and operated on externally. In 1839, Dezeimeris, in 1859, Bonyer, and in 1872, Steiner contributed work of important pathologic value to this subject. It remained for Zuckerkandl to publish the most exhaustive and unequaled treatise on the accessory sinuses.

Disease of the frontal sinus may be grouped into six subclassifications: (1) acute catarrhal or suppurative; (2) chronic catarrhal or suppurative inflammation; (3) confined suppuration; (4) infectious conditions, as tuberculosis and syphilis; (5) mucocele; and (6) tumors, foreign bodies.

The pathologic processes that invade the frontal sinuses are those peculiar to mucous membranes in general and to the other accessory sinuses in particular. The problems of pathology in the region under consideration are modified by the anatomic confines of the bony walls and a small ostium for drainage or infection. Undoubtedly the most frequent pathologic condition of our north temperate zone involving the frontal sinus is the secondary catarrhal inflammation attending acute coryza. The process is usually one of extension. The sinus is protected from infection by its secretion falling through a comparatively long dependent canal. The acute inflammatory processes are frequently nothing more than a renewed bacteriologic activity of some old slumbering infection.

While unusual types of micro-organisms invade this frontal recess, the staphylococcus, streptococcus, pneumococcus and the influenza bacillus, are by far the most frequent invaders. The problems of inflammation within bony cavities, lined with mucous membrane, have much in common with like problems of inflammation elsewhere. The necessity for drainage is more important and requires alertness in diagnosis, with prompt attention to the surgical principles of drainage. Again, there are pathologic problems of the frontal sinus that closely simulate those of the mastoid region. In some cases acute frontal sinus abscess has broken down the bony walls, and even the anterior wall, within three days and this possibility must be borne in mind. Inflammation with hemorrhage and a closed nasal duct may develop especial pathologic conditions. The blood-clot may shrink and undergo fermentation. The activities of the gas-producing microorganism in turn may develop a sharp negative pressure similar to the middle-ear and mastoid phenomena. With this pathologic state, the aggravated symptoms of frontal pain or supra-orbital neuraligia may be developed, which pain or neuralgia is relieved by spontaneous or artificial drainage.

With these acute processes of inflammation may be associated pin-head or larger areas of necrosed bone attended by symptoms of pain. These are exceedingly difficult of diagnosis and have yielded to discovery through the findings of the *x*-ray. Given the fact of acute infection of the frontal sinus with the various types of microorganisms, the problems of pathology in general and inflammation in particular are decidedly influenced by several unknown factors, which we must endeavor to investigate in our cases. *X* may represent the unknown microbe; *y* may represent its virulence; *z* may represent the opsonic index of the individual host. These unknown factors of our algebraic problem may be determined approximately. The variety and virulence of the microbe, the resistance of the patient and the question of drainage, determine the extent, the character, the type, and the various phenomena of acute inflammation in this region; and we understand the pathology of the individual case, the more nearly we appreciate the life-history and habits of the infecting microbe.

The influence of the biochemistry of the blood and lymph and the general systemic condition of the patient must be constantly borne in mind. It is impossible to separate any special pathology of the frontal region from pathology in general. Suppurative and catarrhal conditions are closely related to systemic conditions such as the examthematous diseases of children.

In frontal suppuration it should be a routine procedure to obtain a culture and study the bacteriology on account of the valuable information that may be obtained in relation to the etiology, pathology, prognosis and treatment. It is not only difficult, but frequently impossible to draw the dividing line between acute, subacute, and chronic processes in this region. When the transition occurs, it is characterized by the growth of connective tissue. This may be attended by hypertrophy—general, local or scattered. It may be followed by cyst formation or polypi, or the development of osteomata. The infiltration stage with thickening of the mucosa may go on for months characterized by a mucous or seropurulent discharge with little discomfort to the patient.

The formation of cysts and polypi are quite frequent in the other accessory sinuses—especially the ethmoidal cells and antrum. Retention cysts arise many times as the result of contracting connective tissue thrown into the mucosa and choking the ducts of the mucous glands. Polypi are less common. When the chronic inflammatory processes continue and extend deeply involving the periosteum, and depositing inorganic salts in a meshwork of new cells and capillaries, we may have bony infiltration and the development of osteomata.

Chronic suppuration may be free or confined, depending on the patency of the ostium frontale. A macroscopic examination of the sinus reveals a thickened rough, soggy pyogenic lining membrane which is bathed with yellow and at times fetid pus. It is unusual to find the same pathologic picture associated with the anterior ethmoid cells or antrum. Suppuration may follow trauma.

Fistulas indicate necrosed sinus wall and occur most frequently at the upper internal angle of the orbit. The perforation is usually in the inferior wall of the sinus. When the anterior wall is perforated the point of selection is along the superciliary ridge. Eye clinics at Berlin report one fistula in 18,000, while in Vienna one fistula in 9,000 was found.

Among the more frequent infectious conditions that involve the frontal sinus may be mentioned influenza, tuberculosis, and syphilis. The former variety (influenza) is seen after the acute ravages of the winter grip epidemic have passed. The waves of acute infection subside, leaving colonies of activity in any or all of the accessory cavities. The frontal is frequently the cavity of selection.

Post-mortem examination in subjects who have died of tuberculosis has revealed the presence of tubercle bacilli in normal sinuses. The presence of this disease is rarely primary and shows the pathologic phenomena of tuberculosis of mucous membranes by extension. As nasal tuberculosis is rare, frontal sinus tuberculosis is exceedingly unusual and when present, exhibits no peculiar characteristics. The manifestations of syphilis are usually secondary to ulceration in neighboring tissues. An obscure form may be necrosis of the anterior wall. This condition came under my observation recently—a

diagnosis could be made with the *x*-ray only, as all other methods failed to give any information whatever. Syphilitic processes in this region are deep-seated and invade the soft parts and bone with extensive destruction in the presence of mixed infection. Many of them are not benefited by ordinary antisyphilitic treatment.

Although sinus affections are quite common with general systemic infections, the frontal is less frequently involved than the other accessory cavities. In diphtheria the Klebs-Löffler bacillus may be found, and it may be infected with erysipelas, typhoid fever, variola, pneumonia, or cerebrospinal meningitis.

In addition to inflammatory and suppurative conditions, new growths may appear. Primary benign or malignant tumors, as fibroma, sarcoma, or carcinoma, are exceedingly rare. They involve this region as secondary growths by extension without any unusual change in their pathology. Epithelioma and sarcoma are the most frequent tumor formations involving the frontal sinus. A few cases of mucocele and pneumatocele are on record. Helly has reported nine of the latter. Farlow's case of mucocele with the characteristic "egg-shell crackle" illustrates the pathologic peculiarities of this condition. This tumor appears at the upper and inner angle of the orbital fossæ with a hard surface, slight bony irregularities and develops slowly.

The presence of foreign bodies in the frontal sinus is extremely rare. They occur, however, in both animate and inanimate varieties. A number of interesting cases due to maggots, larvæ and various worms and insects are reported. Bullets, shot, pieces of drainage-tube, broken instruments, constitute some of the inanimate objects recovered. The irritation of foreign bodies is usually followed by marked suppuration.

Modern research has not elaborated any recent remarkable discovery in the pathology of this region. It is necessary, however, that the therapy connected with the frontal sinus should be based on broad and just pathologic foundations. When we appreciate in full measure the value of its teachings the surgery of this region will be placed on the conservative basis where it belongs. The teachings of the ultraradical will be relegated to the realm of oblivion or the mountain of ancient surgical remains. The frontal sinus then, will be opened externally when it is absolutely and pathologically necessary.

If we are to be instrumental in relieving pathologic conditions of inflammatory type in the frontal sinus, this relief must not come through the efforts of surgery alone, but under the prophylactic guardianship of a method of treatment that will prevent and abort acute inflammation and the frequent common "head cold."

32 West Adams Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. SHURLY AND HORN

Dr. E. C. Sewall, San Francisco: My experience with Killian's operation has been limited to twelve cases, and my results have been largely similar to those of Dr. Horn. In my cases, in the beginning, I was somewhat disappointed in the after-results, as regards complete cessation of all secretion, largely due to the lack of proper drainage. This was true even when I felt at the time of operation that I had been particularly careful to get good drainage. Doing a Killian operation, to me, has always been like a stroke at golf: I always feel that if I had another chance at it I could do better. I feel that the operation is surgically correct. I congratulate Dr. Horn on his results. I am certainly very much interested in the use of suction, which in his cases prevented the formation of granulation tissue, which in my cases gave considerable trouble. In this connection I wish to call attention to a suction apparatus which I have introduced into surgery and which I have found of value in this work. I hope to show this apparatus to the Section. Dr. Horn speaks of fatalities being largely due to portions of pus not evacuated. Killian, during my four months with him, five years ago, had a death from osteomyelitis and seemed to look on this as a serious possibility in these cases. When I called again on him a few months ago, I found he was not closing nearly as many cases primarily as before. In my cases, perhaps I have operated too radically, in that I did not do the preliminary work Dr. Horn advocates. And I do not know that I agree with Dr. Horn in submitting the patient to tedious intranasal work on the ethmoid and sphenoid when one has concluded that the Killian operation is necessary. I have included the maxillary antrum in the operation. That may be too radical and in the future possibly I may retract from that position. But I have operated on both frontals, the ethmoids, the sphenoid and the maxillaries at the same sitting and have secured satisfactory results.

Dr. H. B. Graham, San Francisco: I want to congratulate Dr. Horn on the conservatism shown in his paper. I think the radicalism advocated by Jansen of Berlin is certainly not advocated by the majority of rhinologists in Europe to-day. I had the privilege of seeing many European operators work, and at the Budapest conference the tone was conservatism. Hajek and Killian are particularly conservative and I think the men most skilled in intranasal surgery will try every other method before they do a Killian operation. A great deal can be done by intranasal treatment and drainage. The introduction of suction has added a great aid to our drainage methods. The idea that bone dehiscences constitute an indication for the Killian operation is not true to-day. I have had one case in my own practice in which I had been treating the patient four or five months and who was gradually getting better under suction and drainage after operation on the ethmoids. One day I found my washings coming through on the opposite side and I thought I would have to do a Killian operation. But I kept on with the conservative treatment and the patient is now apparently well and has been so for four months. In Vienna I saw a great many patients who had been reoperated on, I am sorry to say, and I think in all there was a lack of technic in the primary operation. The assistants in the clinic were perfectly frank to acknowledge that portions of the mucous membrane had been overlooked.

In the conservative treatment we have a means that has not been mentioned here and that is the use of autogenous vaccination. We have observed at least one case in the Cooper clinic where we used the autogenous vaccine and reduced the infection from a polybacillary to a monobacillary infection. The patient is not cured. What will be the ultimate outcome I do not know, but I think it is of value to know that we can reduce the number of varieties of bacteria in these cases. If we can change a polybacterial pus to a monobacterial one there will be less danger of meningitis in the Killian operation.

Dr. C. F. Welty, San Francisco: When some of the large clinics report that they have ceased to do the Killian operation and a man says he has cured twenty-five consecutive patients, it starts us to thinking there is something wrong somewhere. I am inclined to believe that Dr. Horn's statements are correct, not because of the suction apparatus, but because of a more thorough operation than is usually done. The reason that the Killian operation is in disfavor to-day is because a large majority of the patients are not cured after that operation. If we adhere to the indications as established by Hajek and Killian at the last international congress, we are certainly not going to go ahead. The indications they gave then were threatening cerebral symptoms. It is self-evident that all such patients have to be operated on, regardless of whether they will recover entirely or not. I have operated on patients, with and without the use of Dr. Horn's suction apparatus, and they got well in three or four weeks. I have operated on other patients since and they have not done so well after a number of months. In the patients that

do not get well I feel that the operation has not been sufficiently complete. I cannot believe that the suction apparatus can produce healing if you leave diseased tissue.

DR. SHERMAN VOORHEES, Elmira, N. Y.: Dr. Shurly spoke of a mucocele occurring in these cases and extending into the orbit, destroying the orbital wall. I have had two cases in which the eye-ball was displaced by mucocele and the thrush fungus was found in great numbers. Both patients were operated on by the Killian operation and recovered. Often we will find a deviated septum that should be corrected before the Killian operation is done. I have used for some time the suction apparatus, following the Killian operation and also the intranasal operation, and I can say with Dr. Horn that I think it is of very great use. Sometimes we defer for a long time operation by the Killian method. That is according to the case, to a great extent. I have had two cases in which perforation into the orbit took place following an acute infection of the sinus. In such a virulent case I think none of us would hesitate to operate early. Dr. Horn has emphasized the importance of getting good drainage. We should remember that the outer end of the sinus is lower than the curve in the orbital wall, so that it is necessary to take out the floor of the sinus clear across in order to secure good drainage. I have known some cases in which that was overlooked and the patients came to a second operation.

DR. J. F. BARNHILL, Indianapolis: There is a tendency to get away from radical work, but I think that tendency can be carried too far. There are patients who can be cured by intranasal treatment. On the other hand, no one will doubt that there are patients whom nobody will cure by any method of treatment. These cases are, as a rule, major surgical ones. Sometimes nothing short of applying all of the best surgical principles will effect a cure, and when we learn that this is true and apply such means, we will cure most of them, but there will still be some patients who will not be cured. Dr. Voorhees spoke of one such class of cases. Those of you who have had much of this work, know there are cases such as Dr. Voorhees referred to, in which you cannot overcome the dead spaces and get good drainage unless you have the patient stand on his head a good deal of the time. In such instances, Dr. Horn's suction apparatus may do some good, but I do not think that he believes it will cure all of them. A few patients will permit us to treat them a year or for years and then do radical work. If we do radical work, we must make it what it says it is, radical, and do it so that the operated field can be inspected afterward. We all know the freaks that occur in bone granulation. These often are strange. Sometimes even over night there may form granulations sufficient to hinder drainage and healing of the wound. One of the gentlemen has spoken of a patient who recovered in four weeks after operation. That seems to me almost incredible. I think he means that there was no discharge at the end of that time. He does not tell us what happened the next month or year, when there was perhaps an epidemic of influenza. The fact that a few of these patients die, should not hinder us from going on and doing our duty, any more than the death of a few patients in gynecology should hinder the gynecologists from doing good surgical work, for good drainage secured through careful surgical means is far less dangerous than no drainage. We should treat all patients so as actually to get good drainage. The laity and many practitioners do not recognize the difficulties with which we must contend in this work. To-day probably no work is more difficult than good sinus surgery.

DR. W. R. MURRAY, Minneapolis: I want to emphasize the value of the first paper. It is absolutely essential that we recognize the pathologic conditions that may exist in the frontal sinus before determining our line of treatment. I believe it is the experience of all of us that the indications for the Killian operation are considered less frequent to-day than a few years ago. Often conservative intranasal surgery will give relief in cases of chronic frontal sinusitis. However, the radical external operation has a very distinct place in surgery, and when the indications for such radical operation are present then I believe the Killian operation should be done and not a semi-radical operation. I agree with Dr. Horn that intranasal work should be exhausted before resorting to the external operation, and that intranasal treatment or operation should, if possible, precede the radical operation Unfortunately we cannot always keep the patient under observation and treatment sufficiently long to do this, especially in the case of out-of-town patients.

If I understood Dr. Horn correctly, he attributed the fatal cases he referred to to the presence of over-looked foci of infection in the frontal sinus or ethmoid cells. I should have some doubt as to whether that was the only explanation for the intracranial involvement. In these chronic empyemas the virulency of the microorganisms is usually low and following operation they may become much more virulent. This increased virulency, in connection with some existing pathway of infection, either physiologic or pathologic, which might be present between the sinuses and adjoining cavities, might explain the fatal results. That such communications do exist has been shown by numerous investigators, especially by Zuckerkandl and more recently by Onodi. Of course this is only a possibility and I do not know how we can determine when such conditions are present.

DR. FRANK L. DENNIS, Colorado Springs: For several years we nose and throat men have been using vaccines in sinus and ear affections. Recently, at Dr. G. B. Webb's suggestion, I have introduced the vaccine directly into the mucous membrane of the nose, the idea being that if we can, in the infection of any tissue, put the vaccine into tissue of the same embryologic origin, we may get better and quicker results. Unfortunately, I have not done sufficient of this work to come to a definite conclusion as to its value. However, I feel convinced that I am getting better results from the use of vaccine in this way than before by giving the vaccine subcutaneously.

DR. VICTOR F. LUCCHETTI, San Francisco: I think first of all, the intranasal methods should be exhausted before we proceed to radical work. After the middle turbinal is removed, I believe in many cases fluorescene is of value in washing out the sinus, giving an idea as to the condition of the sinus and also helps to effect a cure. Hydraulic suction is useful, with the use of the masseur of the Victor pump. No one has said anything about the Wassermann reaction. I recently treated a young lady with a bad sinusitis and an ill-smelling discharge, in whom the Wassermann reaction was positive, and she has recovered under the mixed treatment. I have used autogenous vaccine treatment in a number of cases, with benefit, but without a cure.

DR. J. R. FLETCHER, Chicago: Dr. Brem, of the Colon Hospital, Panama, informed me that in 300 autopsies on meningitis cases, some or all of the sinuses were the primary point of the pneumococcus infection. I think we should remember this, because it is not in the literature. The infection almost always extended through the blood-current to the meninges. In a few cases it extended through the ear.

DR. WILLIAM ELLERY BRIGGS, Sacramento, Cal.: Surgery of the nasal accessory sinuses is in its infancy. As a rule it has been far from radical. In fact, many of us avoid radical surgery in these cases until it can be postponed no longer. The results of radical work in this field have not been uniformly good enough to warrant those with little experience to undertake the radical operation on patients who can be made comfortable by less severe means. Those who have not large opportunities for experience would do best to send those patients who need extensive operations to some one who has had abundant chance to see this line of work.

I have seen Dr. Jansen of Berlin do a great deal of radical sinus surgery and he does this work more radically than any other operator that I know. I have seen him operate on the eight sinuses at one time. His flap operation for the frontal sinus is difficult but complete. Whether this will be the ultimate method of operating one can only guess. If such extensive operations are best it will be best to have fewer men doing them. Possibly the autogenous vaccines will accomplish what they have done in other fields of usefulness. If experience should demonstrate this hope to be a fact the radical operation may be rarely needed in the near future.

DR. B. R. SHURLY, Detroit: It is most important that we should give close attention to the acute suppurative processes in the nose. It is these processes that make the trouble later on. It is exceedingly important that every acute inflammation in the nose have as thorough treatment as possible. We must appreciate the difference between the staphylococcus, the streptococcus and the pneumococcus infections; and the difference between the various epidemics and in the virulence of the various strains of microorganisms, especially when the infections invade the accessory nasal sinuses.

DR. HENRY HORN, San Francisco: Dr. Sewall, in his discussion, brought out some points, which I could not cover in my paper because of lack of time. When I said the danger was in the cavities not well drained, I did not refer to osteomyelitic cases. Those have nothing to do with the operation, the infection seems to come as lightning out of a clear sky and kill your patient. The question whether to close the wound primarily or secondarily, depends largely on the personal equation. As to operating without preliminary treatment, of course, if it is not possible to treat patients, and unfortunately here in America that is often true, we may have to eliminate the preliminary treatment. The doctor said he had difficulty with the granulations around the intranasal drainage wound. That is one reason why the preliminary intranasal work is so necessary. Intranasal work should be continued for months, if possible, before the external operation. This allows the epithelial cells to get a start in the region of the future drainage opening and possibly explains why my results were so good and healing was so rapid. When I said a few of them were healed in seven or eight days after the operation, I know that seems an anatomic impossibility, but it is a practical possibility. In seven days after operation in some cases pus cannot be sucked out of the sinuses, and if that condition continues a year or so one is justified in considering the patient healed. What the condition is inside we do not know; that is a pathologic problem on which I am working now. What I have found is that in some reoperative cases the frontal cavity is shut off by connective tissue from the postorbital space and has no communication with the latter. I think probably in some cases the whole cavity is filled up with organized connective tissue. Dr. Sewall spoke of his apparatus. There are dozens of suction apparatus on the market. I only spoke of measured negative pressure, which was first introduced by me into rhinology, and the report published in Germany a few years ago. It is simply measuring the dose. You cannot have any appreciation of the dose of negative pressure unless you measure it with a manometer of some sort. Suction alone will never cure a chronic condition. That is out of the question.

EFFECT OF TUBERCLE PRODUCTS ON EPITHELIUM *

SAMUEL G. DIXON, M.D., LL.D., ALLEN J. SMITH, M.D., LL.D.
AND
HERBERT FOX, M.D.
PHILADELPHIA

That tubercle bacilli or their products have a stimulating effect on epithelial structures we have convinced ourselves. This was quite clearly shown in our work during 1909 and the experiments early in 1910 abundantly corroborated it. We could only be sure of the effects on the epithelium in bile-ducts and bronchi, however, while in mamma and skin epithelium the appearances were far from regular. The work has therefore turned toward establishing conditions which could produce definite continuing results. The results in regard to the organs used are given here.

* Commonwealth of Pennsylvania Department of Health Laboratories.

I. RABBIT EAR

For the purpose of stimulating the growth of epithelium on the ear, two methods were used, one of injecting the material as closely beneath the epidermis as possible, another by rubbing wax derived from tubercle bacilli into an abraded surface on the ear skin. The results seen under the microscope are detailed below.

Ear of Rabbit 57.—Thirteen injections 0.2 mg. dead tubercle bacillus under the skin of ear. Epithelium is essentially the same in the two ears where there are no hair follicles; where hair follicles are present, the epithelium seems a little thicker, but there is no evidence of active multiplication. Very few mitoses can be found; the connective tissue immediately below the epithelium is slightly more cellular in the treated than the untreated ear.

Ear of Rabbit 61.—Fourteen injections 0.5 mg. tubercle bacillus wax under skin of ear. Treated ear: There are many irregularities in the surface epithelium, both in the thickness and in its penetration; there does not seem to be any increase in hair follicle epithelium; connective tissue is rich, well organized and acellular with the exception of one or two minor round-cell collections in vicinity of blood-vessels.

Rabbit 62.—Crude wax molten by gentle heat and rubbed twenty-seven times in six months on an abraded surface on the ear. The other ear was abraded in a similar manner by the same instrument but no wax was applied. After removing a piece of the skin of each ear, the microscopic examination revealed nothing abnormal about the abraded untreated ear skin. The only noteworthy change in the treated ear skin was in the great number of glands and hair follicles throwing off dry epidermal plates, and the collections of crust of dried plates on the surface are certainly thicker than in the control animal.

II. GUINEA-PIG'S MAMMA AND RABBIT'S MAMMA

We had two of our original rabbits left and made use of them for the reason that they had already received irritating dosage in the mammary gland and we felt that they would be much more likely to show epithelial alterations than new animals. We accordingly took them from the males, treated them for a short time and put them with males again, and for the third time treated them with injections. Notwithstanding this severe treatment true stimulation of epithelium to adenomatous or carcinomatous growth did not result. Here are the notes made from the microscopic sections of one. The other was very similar.

Rabbit 58.—Injected six times dead degreased tubercle bacilli; put with male; injected five times; put with male, injected nine times. Did not conceive; mamma dissected off. The injected gland shows less activity than the untreated. A larger part of section surface of untreated gland shows active milk production. The lining of the ducts and skin surface shows greater tendency to drying and flattening in the treated glands. The epithelium is the same in both.

Guinea-pigs were treated with dead degreased tubercle bacilli, dead tubercle bacilli and living tubercle bacillus extract. Two guinea-pigs whose young had died were also treated with wax emulsion. The wax formed a ball mass in the gland and was encapsulated, thus having no effect on the epithelium.

The treatment given the animals injected with the first-named substances consisted of injection, then mating, and again injections. One (631) conceived and the mammary gland was removed as soon as the young could be separated from the mother.

Guinea-Pig 631.—Treated with dead tubercle bacilli three times, then mated, injected three times. Treated mamma presented low-grade but definite interstitial mammitis with distortion of acini and some attempts at reduplication of epithelial lining similar to that in adenoma; untreated mamma normal.

Guinea-Pig 536.—Injected three times with dead tubercle bacilli, then mated, then twelve injections. Animal had an abscess in mamma between last two injections which were three weeks apart. Died from enteritis. Very little difference microscopically between the two glands. In the treated one the connective tissue is probably greater in amount than in the untreated; the gland lumina are wider and much secretion fills them up. No epithelium cell change.

Guinea-Pig 637.—Injected three times tubercle bacillus extract, mated, injected seven times. Died of enteritis. The only noteworthy difference between treated and healthy glands lies in the abundance of desquamated epithelial cells in the gland lumina of the former.

III AND IV. BRONCHIOLES AND HEPATIC BILE-DUCTS

The two structures may be considered together because they are influenced seemingly in the same manner. In last year's report we described how the bile-ducts became prominent, tortuous and apparently increased. We are now convinced that an actual increase in bile-ducts occurs and we believe that they arise from liver columns.

We have one section in which a bile-duct can be traced from liver column cells with their homogeneous pale purple staining protoplasm and uniformly blue nearly solid nucleus, into a well-formed seemingly old bile-duct with epithelium having deep blue vesicular nucleus and rarefied pale blue protoplasm. The exact point at which this newly-made duct assumes its basal membrane cannot be precisely determined but it occurs before the transition of the cell staining properties is complete. As discussed in a previous paragraph, connective tissue increase is quite pronounced in these livers and this new growth is most marked in the fields containing the newly-formed bile-ducts. The connective tissue does not penetrate the lobules farther than where the changes of liver columns indicate alterations of cells preceding the form of duct epithelium. The bile-ducts are very tortuous, and indeed so conspicuously ramified and distorted that the picture of cystic adenoma is closely simulated. There may be also papillary outgrowths in lateral section, but one cannot say yet that these are more than ramifications cut across.

In the bronchioles the changes are fundamentally the same. The epithelium lining shows, however, many more changes correspondingly than do the bronchioles as tubes. One cannot say that they are increased in number, but they are undoubtedly abnormally tortuous. The epithelium is reduplicated both regularly and irregularly. The glands of the larger bronchioles show changes suggestive of carcinoma simplex, although by search one can find a well-formed complete basal membrane.

Within the bronchiolar lumen, one may see papillomatous overgrowth of the epithelium, usually but not always accompanied by connective tissue stalks. Many desquamated whole and disorganized epithelial cells lie in the lumen. Similar pictures, but to a very mild degree, are seen in the large bronchi.

COMMENT

The results of our experiments with the purpose of stimulating superficial epithelium overgrowth by products of the tubercle bacillus have not been satisfactory.

At most there is but little overgrowth and that is best seen on the free surface where the irritant was applied locally. Here the tubercle bacillus products have behaved as most other mild irritants, producing a low-grade keratosis. On the other hand, in the internal viscera of animals injected subcutaneously or intraperitoneally with the tubercle product, a very decided influence is exerted on bile-ducts and bronchiolar epithelium, which can be explained only on the basis of some attraction relationship between epithelium and the tubercle bacillus. The following conditions, however, must be strongly emphasized. Animals receiving tubercle bacillus products into the peritoneum or beneath the skin show these changes clearly enough to be followed. Animals given living tubercle bacilli, either after or before the product, show the changes in liver and lung very well and in much farther advanced condition than when living tubercle bacilli are not given. Control animals receiving only living tubercle bacilli present changes to about the same degree as seen in animals receiving only injections of products. The deduction is therefore justifiable that a combination of living tubercle bacilli and a tuberclin is necessary to the great effect on epithelium. This is not true for endothelium, which seems to undergo rapidly the changes usual in unrestrained tuberculomata or in caseous tuberculosis.

We might hazard a conclusion that this helps to explain the benefit of tuberculin injections on tuberculosis of organs rich in epithelium and the rather less promising outlook for caseous lesions where endothelium predominates.

A THEORY FOR THE PATHOLOGIC PHYSIOLOGY INVOLVED IN DISEASE OF THE THYROID GLAND AND ITS THERAPEUTIC APPLICATION

EXPERIMENTAL STUDIES *

JOHN ROGERS, M.D.
NEW YORK

A SUMMARY OF WHAT IS KNOWN ABOUT THE PHYSIOLOGY OF THE THYROID

It is now accepted as reasonably certain that the thyroid discharges into the circulation a secretion which is of importance for many organs and tissues; that this exerts its effects directly on some and indirectly on others, possibly through the nervous system; that the formation of this secretion is the only function of the thyroid and that it has no other constructive or destructive attributes; that the physiologic activity of the thyroid secretion is dependent on an iodized protein or proteins and that it seems roughly proportionate in activity to its iodin content; that this secretion seems not to be destroyed during its utilization but to be reabsorbed by the thyroid with little or no loss; this fact in itself suggests the possibility of auto-activation of the gland.

It also seems to have been demonstrated that iodin starvation may produce simple goiter which can be interpreted as a compensatory hypertrophy in the attempt to supply a normally active thyroid product in the presence of a deficient ingestion of the essential iodin.

The thyroid secretion has some connection with oxidation, for by thyroid feeding in myxedema or cretinism the consumption of oxygen can be markedly increased. Likewise the amount of heat given off from the body can be correspondingly augmented. Conversely, experimental thyroidectomy leads to a diminution in the absorption of oxygen. This secretion also has to do with both carbohydrate and nitrogenous metabolism and cer-

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911. The article is here abbreviated because of its length, but it appears in full in the Transactions of the Section and in the author's reprints.

tain recent experiments[1] seem to connect nitrogenous metabolism in the liver directly with the thyroid. There has been much controversy about the iodin content of this gland in health and disease, but the most recent and correct determinations[2] seem to prove that the normal human organ contains on an average 0.3 mg. of iodin per gram of gland substance. In the thyroid of Graves' disease, however, this is decreased to 0.2 mg. or 0.1 mg. or even less, and the less the amount of iodin per gram of gland substance, as a general rule, the more severe are the symptoms. Nevertheless, if before the gland comes to analysis, the patient has been fed iodin in any form the quantity of this element within the gland may be greatly in excess of the normal.

That which may be called the physiologic chemistry of the thyroid is extremely interesting and important: if a number of fresh and normal human thyroids are ground and suspended in salt solution, to which a little thymol is added to prevent putrefaction, and stored in a refrigerator for several days and the coarser material strained off through gauze or a filter, an opalescent or cloudy filtrate is obtained. By the addition to this of some dilute acetic acid at ice-box temperature, there results a small amount of precipitate, which is a nucleoproteid. After removal of this product and half saturation of the filtrate with ammonium sulphate there can be obtained a much more abundant precipitate, which is a globulin. In a similar treatment of the pathologic thyroid of Graves' disease, which is far richer in epithelium and poorer in colloid than the normal gland, the nucleoproteid element is obtained in much greater quantity and the globulin in much less or scarcely at all. The nucleoproteid product can therefore be supposed to represent the epithelial portion of the gland and the globulin, the colloid material. The cross-section of a thyroid taken from a subject of acute toxemic hyperthyroidism presents a solid yellowish surface very different from that of the normal gland with its sponge-like areas of small depressions filled with a mucoid substance. Histologically the vesicles of the diseased organ are more or less filled with epithelium, either fully formed or disintegrating, and with cellular detritus; but there is little or no colloid. Chemically, as remarked before, this gland contains an abundance of nucleoproteid while the globulin is scanty or absent.

Somewhat analogous chemical and microscopic differences exist between the normal thyroids of the pig and sheep. The latter animals have much more globulin or colloid than nucleoproteid, while the pig gland, which is very rich in epithelium, yields a large nucleoproteid precipitate and comparatively little globulin. As regards the iodin content of these two substances, the nucleoproteid seems to contain more than the globulin, but this element is present in both products. If, however, the dissolved and suspended thyroid proteids, instead of being treated at ice-box temperature, are first warmed to 40 C. and then treated with 0.5 per cent. acetic acid, a much larger precipitate results than in the cold process, and the filtrate yields little or nothing on the addition of ammonium sulphate. The laboratory workers therefore doubt that there can be any difference in the physiologic activity between the nucleoproteid and globulin constituents of the thyroid, as their chief chemical difference appears to lie in the temperature at which they are precipitated. Nevertheless, there seem to be very marked physiologic differences shown by these two substances. If 10 to 15 minims of a 1 to 1,000 solution of the human thyroid nucleoproteid is injected subcutaneously into a normal individual at intervals of a couple of hours it invariably and soon produces tachycardia, accelerated respiration, cutaneous flushing, slight elevation of temperature with a subjective feeling of heat, sweating, tremor, insomnia and a sensation of "nervousness." The amount required to excite these symptoms varies considerably in different persons, but by increasing the dosage the symptoms can always be obtained and gastro-intestinal disturbances with diarrhea may be added. The symptoms produced by the injection of the thyroid nucleoproteid therefore correspond very closely with those which accompany overactivity of the gland or Graves' disease.

It should be noted that the ammonium sulphate precipitate or the globulin cannot be obtained entirely free from some admixture with the nucleoproteid material. Now when thyroid globulin solution is injected subcutaneously into a normal individual in the same dosage as the nucleoproteid, there seems to be little or no effect except a feeling of well-being, and a very large amount has to be administered and for a much longer time, to obtain the characteristic signs of thyroidism. But in certain abnormal individuals whose condition can be traced directly or indirectly to some disorder of the thyroid, this (impure) thyroid globulin may act as a dissipator of melancholic depression, as a means of slowing the pulse and respiration, of improving the resistance to infection, of checking diarrhea, as a cholagogue, a diuretic, an emmenagogue, or a sexual excitant. In general, it will often increase the quantity of the hemoglobin and the red cells better and more rapidly than iron or arsenic; it seems to be a far better tonic than the "bitters" or their alkaloids; it is more specific in gout and rheumatism than colchicum or salicylic acid. In fact, the enthusiastic endorsements of thyroid feeding found in literature for every imaginable ailment would be far more abundant if this thyroid globulin were more generally known and obtainable. Its best results are shown in hypodermatic administration; but for this purpose it is necessary to employ the material made from the human gland, as that from an unrelated animal like the sheep, if continued for any length of time, excites in man the formation of antibody, which neutralizes the foreign proteid.

The college laboratory, under the direction of Dr. Beebe,[3] has made tablets chiefly from sheep and pig thyroids which contain the combined proteids precipitated by acetic acid at room temperature from one or the other gland and standardized according to their content of iodized protein. The dosage is from 1/100 to 1/10 of a grain frequently repeated. The sheep thyroid contains far more globulin or colloid than that of the pig and seems more generally useful. The combined thyroid proteids in the tablet made from the pig gland is often essential, however, in certain conditions which are accompanied by a blood-pressure above 130 or 140 mm. of Hg but is much more likely than the sheep thyroid tablet to excite the characteristic signs of thyroidism; and in addition there seems not infrequently to be produced a peculiar subjective feeling of melancholy.

In passing it should be noted that the usual commercial thyroid tablets are made from the desiccated sheep's gland. As the thyroid rapidly autolyzes and as the globulin or colloid suffers most in this process, it is probable that the useful and active ingredient or ingredients may

1. Schryver and personal communication from S. P. Beebe.
2. Riggs: Jour. Am. Chem. Soc., May, 1910, xxxii, No. 5.
3. The methods of fractional separation of the thyroid components are described fully in the Am. Jour. of Pharm., February, 1911, by S. P. Beebe.

be extremely variable in amount and contain mostly if not entirely only the nucleoproteid element. This thyroid nucleoproteid, which with more or less reason is assumed to be the chief active ingredient in the commercial thyroid tablet and in the laboratory tablet of the pig thyroid combined proteids (and can be prepared approximately pure) is extremely valuable in cases of thyroid disease presenting more of the symptoms of myxedema than of Graves' disease but with a blood-pressure above 140 mm. of Hg. In thyroid disease with high rather than normal or subnormal blood-pressure the thyroid globulin or the sheep thyroid combined proteids often aggravate some of the symptoms.

To recapitulate briefly the physiology of what appear to be two dissimilar though closely related substances in the thyroid secretion, it seems that the nucleoproteid affects chiefly if not solely the sympathetic nervous system, while the globulin or colloid affects so many organs and tissues that for the purposes of the hypothesis it can be called universally activating. An analogy for this double or complex secretion can be found in that of the pancreas, and the comparison may lead to less distrust of the findings detailed above.

THE ANTITHYROID SERUM

Before proceeding further it is necessary to refer to the antithyroid serum which led to the development of the theory about to be offered for the physiology of the thyroid. It is made by injecting sheep or rabbits at intervals of a few days with the combined nucleoproteid and globulin obtained from the human thyroid gland. After about six weeks of this treatment the blood is drawn from the carotid, the serum separated and tested for "activity" and stored for use in sealed glass tubes in a dosage of about 1 c.c. Its specificity and the reasons for it have been given in previous communications[4] and need not be repeated here. This serum seems as specific and beneficial in its effects on the symptoms of acute toxemic thyroidism as is the antitoxin on those of diphtheria; but the convalescence is protracted, and after the subsidence of the acute symptoms the antithyroid serum must not be "pushed" unduly. In acute exacerbations of chronic thyroidism it must be used with caution and not beyond the period at which it seems beneficial. In the usual chronic case of exophthalmic goiter, except when the blood-pressure is high or above 150 mm. of Hg, it is slowly beneficial and often curative when administered at intervals of two or three days and continued for weeks or months. It cannot with safety be administered oftener than once in twenty-four hours, and if at any time at the end of two or three days it has intensified rather than alleviated symptoms it should be stopped.

THE RELATIONSHIP OF THE CHROMAFFIN SYSTEM TO OTHER ORGANS AND ITS CONNECTION WITH DISEASES OF THE THYROID

The chromaffin system is an extremely interesting organ or group of organs, apparently belonging to both the nervous and secretory systems in that it is composed of certain cells distinguished from others by a characteristic staining reaction with the salts of chromium. These cells originate from the same embryonic source as the sympathetic nerves, namely, the neural ectoderm, and are found in larger or smaller collections in juxtaposition with these nerves all the way from the base of the skull to the bottom of the pelvis. The largest individual groups of them exist in the medullary portion of the adrenal glands, from which their active ingredient or product, epinephrin, is derived. This seems limited in its effects to the terminal filaments of the sympathetic nerves. Although the aggregations of the chromaffin cells which produce the epinephrin do not correspond exactly to secreting glandular tissue, they must nevertheless be regarded as having a secretory function. Furthermore, some recent experiments by Cannon and others indicate quantitative variations in the blood from time to time of the adrenal or chromaffin system product and hence it is reasonable to infer the possibility of functional derangements of this system which correspond to what is known to exist in the case of the thyroid. The sympathetic nerves, it should be recalled, supply only unstriped muscular fibers and secretory epithelium, of which by far the greatest amount is concerned with digestive and nutritional processes. Epinephrin may thus activate or inhibit the purely nervous impulses which, in addition to the chemical stimuli conveyed through the circulation, regulate the interaction of the different organs and especially the gastro-intestinal tract, the pancreas and liver. The most abundant and easily demonstrated nerve-supply of the thyroid and pancreas is from the sympathetic.

The (pig) adrenal gland can be treated like the thyroid and the nucleoproteid material thus obtained differs from epinephrin in having no local vasoconstrictor effect, while it lowers blood-pressure instead of raising it in certain atypical conditions accompanied by thyroid disease. Those cases in which this product is extremely beneficial or essential have goiter and more of the signs of myxedema than of Graves' disease, although there may be a greater or less degree of tachycardia, a blood-pressure above 140 mm. of Hg, cutaneous pigmentation, and gastro-intestinal disturbance in the form of diarrhea or recurring attacks of nausea, vomiting and diarrhea. If there is in addition headache, a combination of adrenal nucleoproteid and thyroid nucleoproteid will generally prove most helpful.

THE SYMPTOMS REFERABLE TO THE CHROMAFFIN SYSTEM WHICH MAY INDICATE ITS PARTICIPATION AND FUNCTIONAL DISEASE IN DISORDERS OF THE THYROID

The secreting portion of this system, or the chromaffin cells, are generally believed to produce epinephin or some closely allied substance or substances which apparently vary in amount in the circulation according to the bodily needs. The secretory portion of this mechanism must be subject to the same general laws as other organs, and hence must suffer from functional and structural disorders. The general picture furnished by Addison's disease supplies a very indefinite and uncertain standard but is the only one clinically recognized. The quantitative test for epinephrin by the instillation of a drop of blood or serum into a freshly excised frog's eye and noting the consequent degree of contraction or dilatation of the pupil, does not seem satisfactory. The destruction of the medullary portion of the adrenals apparently leads to a peculiar bronzing or pigmentation of the skin and mucous membranes, most marked about the nipples and genitals and in the mouth and on the hands and face; the muscular weakness is marked; the blood-pressure is low and the pulse rapid. Anorexia, nausea, vomiting and diarrhea are common. The most constant result of electrical stimulation of the adrenals in dogs is a pronounced muscular tremor, extreme tachycardia, accelerated respiration and a rise of between 1 and 4 F.

4. Beebe, S. P.: Preparation of a Serum for the Treatment of Exophthamic Goiter, THE JOURNAL A. M. A., Feb. 17, 1906, p. 487.

in temperature within half an hour, and a marked rise in blood-pressure which seems more pronounced than that due to fear or pain. In Graves' disease so many of the symptoms are traceable to stimulation of the sympathetic that it formerly was described as a neurosis of this system. The cutaneous flushing, the sweating, and the tachycardia are the most distinctive. In the absence of other known causes, an elevation or depression of the blood-pressure and cutaneous pigmentation and perhaps the converse, or extreme pallor, must also be traced to the sympathetic of chromaffin system. It was stated above that the thyroid nucleoproteid seemed limited in its effects to stimulation of this system and that the thyroid globulin in the same dosage showed none of this peculiar activation. Hence when there is a demonstrable excess of nucleoproteid in a given thyroid secretion it is reasonable to ascribe the origin of the symptoms referable to the sympathetic, ultimately to the thyroid, and in the absence of such an excess of thyroid nucleoproteid they should be traceable directly to a functional disorder of the chromaffin system.

The presence of a goiter will often supply the clue for unraveling many obscure conditions.

THE RELATIONS OF THE PANCREAS TO THE THYROID, LIVER AND CHROMAFFIN SYSTEM

The digestive action of the pancreas needs no review, and it remains only to recall that there is a reasonable certainty of the relationship existing between the hydrochloric acid of the stomach, the secretin or prosecretin of the duodenum, the pancreas, its trypsinogen and the enterokinase of the small intestine. From the results of the experiments outlined above[5] it seems probable that at least some of the intestinal secretion of the pancreas is absorbed into the portal system and being thus carried to the liver exerts an important direct effect on the chemical processes in this organ. It is also reasonably certain that the pancreas produces an internal secretion, probably from the islands of Langerhans, which has a close connection with the adrenals and sympathetic nervous system. This has been demonstrated with more or less certainty in the great number of experiments dealing with glycosuria, particularly those of Opie, who extirpated all but a small portion of the pancreas and found no glycosuria until this remnant was removed. The remnant contained only the islands of Langerhans.

The investigations on glycosuria have also shown that the thyroid is concerned in the process through some apparently inhibitive action of the pancreatic by the thyroid secretion. Furthermore, all the evidence at hand strongly suggests that the closely interdependent thyroid, pancreas and chromaffin systems consummate their relations in the liver. Hence it is extremely probable that disease cannot exist in any part of this group without affecting more than one of its components. These components may be and probably are connected with other organs similarly associated in function, and therefore, therapeutics directed at the thyroid alone may be even harmful if the thyroid is not the primary source of the difficulties. Apparently goiter or symptoms referable to the thyroid may occasionally be entirely secondary to other disturbances, and the superficial deformity seems often to be only a hypertrophy which is compensatory to a failure elsewhere. A pancreas nucleoproteid can be prepared from the ground-up gland suspended in salt solution like that from the thyroid and adrenals. Clinically, it is a valuable and sometimes an essential adjuvant in the treatment, particularly in some cases of myxedema which are accompanied by headache, insomnia, constipation and persistent asthenia with loss of flesh and strength. The dosage is from about 1/8 to 1 grain, frequently repeated and generally used with the combined proteids of the sheep thyroid.

In addition the commercial enzymes or extracts of the pancreas, especially trypsin, administered by rectum or by mouth, are often useful as sedatives in all stages of Graves' disease.

THE SYMPTOMS WHICH MAY INDICATE PARTICIPATION OF THE PANCREAS IN THYROID DISEASE

The symptoms referable to functional or structural disease of the pancreas are notoriously unreliable. Nevertheless, as extreme fatigue impairs the functional activity of all organs, it is fair, under these conditions, to infer a decrease in the pancreatic product. The insomnia and constipation which are so constant in incipient or early hyperthyroidism, can be regularly relieved by the administration, either by mouth or by rectum, of one or another preparation from the pancreas, and hence these vague signs may be those of pancreatic insufficiency. The Cammidge reaction and tests of the stools in my hands have proved negative in disorders of the thyroid in which the pancreas may be supposed to participate.

Without the coexistence of thyroid symptoms or a perceptible goiter it would be clinically impossible to recognize the cases in which pancreas feeding can give the greatest benefit.

THE COMPARISON OF SYMPTOMS IN DIFFERENT FORMS AND STAGES OF THYROID DISEASE TO SHOW THE VARIATIONS IN THEIR PROBABLE ORIGIN AND CONSEQUENTLY IN THE THERAPEUTICS REQUIRED

In the development of the hypothesis and for therapeutic purposes, it is necessary to contrast the symptoms of Graves' disease, or hyperthyroidism, and those of myxedema, or hypothyroidism. The indications of defective or deficient thyroid globulin can then be pointed out. An excess of nucleoproteid in the thyroid secretion seems always to be shown by stimulation of the sympathetic nervous system which is revealed chiefly by tachycardia and cutaneous vasomotor irritability.

SMYPTOMS[6]

Hyperthyroidism with excess of thyroid globulin:	*Hypothyroidism with defective or deficient thyroid globulin:*
1. History of fatigue and slow onset.	1. The same.
2. More common in adolescence than in middle life and in women.	2. More common during and after middle life and in women.
3. Cutaneous flushing; tachycardia; manifest overaction of heart; pulsation of cervical vessels; all increased by exertion; blood-pressure 120-130.	3. Flushed skin over malar prominences only, marked pallor elsewhere; slow pulse; blood-pressure usually below 120.
4. Mental instability and excitability rather than mental alertness; tremor; restlessness; quick, jerky movements of extremities; insomnia.	4. Mentality sluggish, rather than dull; headache; insomnia with changes to somnolence only in terminal stages; slow movements.
5. Muscular weakness and inability to withstand ordinary fatigue.	5. The same.
6. Exophthalmos generally present in some degree, and the more marked it is the worse is the prognosis. It is often absent in the early stages.	6. No exophthalmos except in those who have passed through a preceding Graves' disease. In place of it there is a characteristic puffiness and edema around the eyelids and in the supraclavicular regions and on the back of neck and below the knees.

5. Omitted for lack of space here.

6. Beebe and Rogers: Arch. Int. Med., November, 1908.

SYMPTOMS—Continued

Hyperthyroidism with excess of thyroid globulin:	*Hypothyroidism with defective or deficient thyroid globulin:*
7. Goiter of variable size and consistency. Its vascularity and density give some indication of the relative importance of the thyroid in the general disturbance; goiter is often imperceptible in the early stages.	7. Goiter is common, but by its consistency and absence of vascularity suggests a functionless organ.
8. Appetite abnormally good and out of proportion to the evident poor nutrition, movements regular or diarrheic. Thirst constant.	8. Appetite poor; apparently good nutrition. Constipation. No thirst.
9. Skin moist with a subjective feeling of heat.	9. Skin dry and scaly; subjective feeling of cold.
10. Temperature 99 to 101.	10. Temperature subnormal.
11. Blood shows relative lymphocytosis, anemia slight or absent.	11. Negative, anemia regularly.
12. Menstruation irregular or absent.	12. Regular but scanty, occasionally excessive.
13. Urine in nitrogen partition shows excess of creatin and diminished creatinin.	13. Negative; albumin sometimes present.

As typical Graves' disease may terminate in a typical myxedema there are in the intermediate stages many examples of the coexistence of both of these conditions. Clinically these states are remediable, not by measures designed to suppress the thyroid, like the antithyroid serum and partial thyroidectomy, but by feeding with thyroid globulin or the combined sheep thyroid proteids, which contain an excess of this substance. The inference is plain, therefore, that there is a deficient or defective colloid. The chief symptoms which indicate the necessity are headache, especially in the morning, anorexia, constipation and a dry skin, especially over the elbows and knees, and edema about the ankles.

THE HYPOTHESIS

Normally the thyroid, through a small but important part of its secretion, is supposed to activate specifically the chromaffin or sympathetic nervous system, and through the larger portion of its product every other organ and tissue in the body. The word "activate" is used intentionally in a general sense to signify some constant unknown chemical reaction which is of importance to the functional activity of every part of the body, as it is difficult to conceive of a secretion having one effect on this organ and another on that. And the thyroid evidently is concerned in so many metabolic processes that its influence cannot be excluded from any. It follows, therefore, that conditions which call for great functional activity in any particular organ or group of organs must require some corresponding increase in the functional activity of the thyroid and often force it to undergo a compensatory hypertrophy. This may result more easily if the gland possesses some congenital or acquired defect which makes its output less efficacious than it should be. The goiters which occur in young girls at puberty or in women during pregnancy or at the menopause can thus be explained as hypertrophies of a possibly weak organ to compensate for an unusual demand on the thyroid secretion, while the so-called endemic goiter found in certain localities may be the expression of an attempt on the part of the thyroid to compensate for a defect in itself or elsewhere which is dependent on a starvation or superabundance in some element essential in the metabolism of one or more organs. This means that all goiters, except the true tumors of the thyroid, though they may originate in many different ways from defective metabolism in the thyroid itself or any other functionally associated organ, have essentially the same cause in an increase or attempted increase in thyroid function. The later degenerative changes which may supervene in the gland are side-issues, although they may be of great importance, in that these changes, by destruction of the portion of the gland still capable of normal function, may promote the enlargement and degeneration of this part, or by pressure on adjacent structures, chiefly the trachea, so interfere with general nutrition as to have the same effect as the primary fault.

The increase of function implies a consequent fatigue, the effects of which have been studied chiefly by electrical stimulation of the salivary glands. In these there is at first a greatly increased and approximately normal flow of secretion according to the nerve employed, but it soon becomes watery and of poor quality and finally ceases altogether and cannot be reexcited until a considerable period of rest has been allowed. All the clinical evidence strongly suggests fatigue in one form or another as the exciting cause of hyperthyroidism. The production of a normal secretion or colloid material, of course, depends on the vitality or biochemical capacity of the thyroid epithelium; and, as iodin is an essential ingredient of its product, the biochemical relationship of the epithelium with this element should suffer according to the degree of fatigue imposed on the gland. In the fractional separation of the thyroid proteids the pathologic gland of hyperthyroidism, as remarked before, yields a far more abundant acetic acid precipitate than the normal organ and much less of an ammonium sulphate precipitate. The quantities vary within certain limits, depending somewhat on the temperature and concentration of the solutions employed, but in general the quantity of the acetic acid precipitate is in direct proportion to the severity of the hyperthyroid symptoms, and the most prominent of these are traceable to the chromaffin or sympathetic nervous system. Qualitative variations in the product of the thyroid of Graves' disease, though probable from analogy and from the microchemical appearances of the gland, cannot be demonstrated as well as can these quantitative changes in its product. It is assumed, therefore, with more or less reason, that in Graves' disease fatigue damages the biochemical relationship of the epithelium with iodin and in an ineffective attempt to metabolize this element properly, the epithelium proliferates too rapidly and disintegrates, and, instead of a colloid containing the normal proportions of iodized proteids, there results one in which there is an excess of one or more elements and a deficiency of others. Specifically there seems to be an excess of one, designated here as a nucleoproteid, which is believed to activate only the chromaffin system, and in the most severe forms of the disease a deficiency of the globulin component of the secretion although in the milder forms of the disorder this also may be more or less abundant, but possibly of inferior quality. In consequence of this excess of nucleoproteid the whole sympathetic nervous system which supplies secreting, glandular epithelium is unduly stimulated and one or more vicious circles are immediately started, which perpetuate the process. Auto-activation of the thyroid through its sympathetic innervation is suggested by the injurious effects of (commercial) thyroid feeding in active hyperthyroidism, as well as by the benefits obtainable from surgical interference. At the same time the globulin portion of the secretion which is supposed to be universally activating may return in the circulation to its source, and, when superabundant, as in the milder forms of hyperthyroidism, may stimulate the epithelium to a pathologic extent. The similar activation of the sympathetic, by the thyroid nucleoproteid and probable

fatigue which follows this stimulation of the important organs concerned in digestive processes, should impair the general nutrition and with it that of the thyroid, and thus add to its injury and abnormal activity. If the supposed compensatory hypertrophy and overactivity of the thyroid was started by a primary defect, for example, in the chromaffin system or the pancreas, as is conceivable and seems probable from clinical experiences with certain cases, attempts at relief of the thyroid fatigue and its consequent excessive stimulation of the sympathetic are always logical though seldom curative. Patients with glycosuria and comparatively mild signs of Graves' disease or with symptomatic Addison's disease and moderate thyroidism are suggested as belonging in this class. But feeding thyroid to a diabetic individual with the object of relieving the apparent strain on the thyroid is dangerous.

The existence of hyperthyroidism without any perceptible goiter seems to indicate that the gland is so defective or so fatigued as to be unable to hypertrophy, and in general, such cases will be found to have a worse prognosis than those in which a considerable enlargement has occurred before the constitutional manifestations appear, and when recovery from the thyroidism takes place, sooner or later signs of myxedema commonly follow.

In myxedema it is believed that a fatigue of the thyroid has been brought about in some one of the same several ways which are apparently the exciting cause of simple goiter and of hyperthyroidism. But the epithelium in its attempt to metabolize iodin, instead of multiplying, is unequal to any effort at compensation and atrophies. The not infrequent termination of simple hypertrophy of the thyroid and of Graves' disease in myxedema and the injurious effects of fatigue in general on the disorder, as well as the therapeutic experience of thyroid feeding, particularly with the active ingredients of the gland in their normal proportions, which may be supposed to relieve the strain on the organ, all unite to indicate a glandular fatigue as the cause of myxedema. When symptoms of Graves' disease and myxedema coexist, as often happens, it seems probable that certain portions of the thyroid are more injuriously affected by fatigue than others, and, while one area attempts to compensate for the excessive demands on the biochemical capacity of the epithelium by its proliferation, another is incapable of response and the epithelium atrophies. Or, inasmuch as the symptoms of Graves' disease more frequently precede those of myxedema, the latter is simply the expression of the terminal stages of the glandular fatigue and becomes manifest in the epithelium serially in the order of its individual vitality.

THERAPEUTICS

This hypothesis, based on fatigue of the whole organism, and especially on that of the components particularly concerned in general nutritional processes, and on the consequent variations in the quality and quantity of the products of these components, supplies a rational foundation on which to formulate measures designed either to check a pathologically overactive thyroid or to aid a defective one.

The primary requisite is rest for the gland, and that for sufficient time to allow its epithelium to regain its ability to metabolize iodin properly. To obtain this the superabundant thyroid nucleoproteid, and probably the thyroid globulin, must be cut down, not only to relieve the thyroid of the constant auto-activation, but to check the abnormal stimulation through the sympathetic of the thoracic and abdominal organs. While this is being accomplished, the presumable strain on the thyroid, whose secretion is supposed to be in constant and universal demand, must be relieved by feeding, preferably with the combined sheep thyroid proteids, which contains a preponderance of globulin, in a dosage of approximately from 1/100 to 1/10 grain frequently repeated. The probability of auto-activation of the gland must be borne in mind and the thyroid feeding kept constantly just below the point at which it intensifies the symptoms.

In addition attention should be given to all associated errors, especially in the gastro-intestinal tract, in order that the nutrition, irrespective of the hypothetical functional disorders of the pancreas and adrenals, may be improved, and thus by improving the general nutrition improve the nutrition and the functional capacity of the thyroid. Appropriate "organ therapy" ineffective as it often must be from our ignorance of its mechanism, seems theoretically best.

Patients with thyroidism who show a blood-pressure above 140 mm. of Hg and some signs of myxedema, especially headache, insomnia, constipation, a dry skin and asthenia, generally are more benefited by feeding with the combined pig thyroid proteids or the commercial tablets made from the desiccated gland, both of which contain a preponderance of the nucleoproteid element, than by the administration of thyroid globulin or the combined sheep thyroid proteids. Or the adrenal nucleoproteid, alone or combined with the thyroid nucleoproteid, may prove most satisfactory, especially if there is diarrhea and much cutaneous pigmentation and the symptoms directly referable to thyroid activity are not marked.

One or another form of pancreas feeding seems usually a necessity in myxedema and is generally beneficial in thyroidism although occasional instances of intensification of symptoms may occur in typical Graves' disease.

As remarked before, the antithyroid serum is almost as specific in cases of acute toxemic thyroidism as is the antitoxin for diphtheria. Theoretically at least, by its cytotoxic element it checks or inhibits the abnormal proliferation of the epithelium and by its antiglobulin neutralizes the colloid. But after the subsidence of the acute symptoms it should not be pushed, as it may damage the already weakened gland. Rest and supporting therapy are more often indicated.

The serum should be used with more caution in the frequent acute exacerbations of a chronic thyroidism. It is exceedingly valuable in a crisis, but a gland which may be supposed to be almost devitalized although dangerously overactive, can withstand but little interference.

The operation of ligation and division of the blood-vessels and nerves of the thyroid at favorable opportunities is both theoretically and practically indicated, as it insures rest for the gland by cutting off not only auto-activation, but all stimuli. The operation has not received as much attention as it should because the two inferior thyroid arteries are usually not disturbed and are often larger and so more important than the superior. All four vessels with their accompanying nerves and the superior thyroid veins (there are no veins accompanying the inferior arteries) can be cut under local anesthesia and without appreciable risk, provided not more than two are cut at one sitting.

Partial thyroidectomy in exophthalmic goiter apparently cures by removing at once the excess of abnormal secretion and so allowing the remaining portion of the

gland to rest and regain its ability to metabolize iodin. But it will invariably fail to cure when undertaken in a symmetrically diseased gland and unless the convalescence is most carefully guarded. To be successful the portion of the gland which is allowed to remain must possess excellent vitality and show some approach to normal structure; otherwise the patient is left with only half a gland which is even less able to withstand fatigue than the whole organ was originally.

Thyroidectomy is essential, however, in cases of localized or partial thyroid disease in which the diseased tissue, not only by constant auto-activation of the whole gland by the secretion from its abnormal portion, but by pressure on the approximately normal portion of the gland by the diseased part so damages it that complete degeneration may follow. Furthermore, pressure on surrounding structures, especially the trachea, may so interfere with general vitality that this alone renders operation imperative. At the same time in the presence of dyspnea from goiter, operation will benefit or cure any co-existing thyroidism through improvement in the general, constitutional nutrition, which in turn benefits the thyroid and enables it to regain its ability to metabolize iodin properly.

But radical operation should be undertaken with far more caution than is usually the case and should be followed for a long time by thyroid feeding, preferably with the combined sheep thyroid proteids, to relieve the strain on the remaining portion of the thyroid and enable it to undergo the necessary compensatory hypertrophy.

Rest is as essential in the successful management of hypothyroidism as it is in hyperthyroidism. But the treatment of myxedema, especially in some of its atypical aspects, is far from being as simple a matter as seems usually believed. The ordinary commercial thyroid tablets, when given in sufficient amount to relieve some of the symptoms, will often excite the characteristic signs of thyroidism apparently by auto-activation of the gland through its sympathetic nerve-supply. This results in an exaggeration of the fatigue and in a worse condition than the myxedema. The combined thyroid proteids of the sheep gland, with their abundance of the globulin element, are to a large extent free from this disadvantage, but even these may fail to prove satisfactory. If there are indications of probable pancreatic deficiency in persistent headache, insomnia and constipation, it will generally be found that the addition of one or another pancreatic preparation will be successful. Or if there is a high blood-pressure with headache and occasional or constant diarrhea and cutaneous pigmentation or extreme pallor without noticeable anemia, the adrenal nucleoproteid, alone or in combination with the thyroid nucleoproteid, is often most beneficial. There are some cases, however, in which nothing seems capable of affording benefit except a solution given hypodermatically of the thyroid proteids obtained from the human gland.

The simple hypertrophies of the thyroid which are most common in young people, especially girls, are, of course, to be regarded as a protective rather than a pathologic phenomenon, except that the hypertrophy is compensatory to some deficiency in the thyroid itself or the organs associated with it, and as fatigue is a part of the process, rest is essential in the treatment. In addition, every care must be expended to recognize and remedy all nutritional errors. But these hypertrophies carry with them the ever-existing dangers of thyroidism, and should, therefore, be regarded with concern and seldom or never dismissed as of trifling importance. Nor, on the other hand, should they be subjected to radical thyroidectomy, which ruthlessly destroys the attempted compensation and often does irreparable damage.

102 East Thirtieth Street.

FACTORS INFLUENCING THE SAFETY OF OPERATION FOR GOITER*

MARTIN B. TINKER, S.B., M.D.
ITHACA, N. Y.

No form of treatment for goiter has stood the test of years as has surgery since 1885, when Kocher reported the first considerable number of operations. Numerous patients treated for years by drugs, serums and other measures have later sought relief in surgery, and the number of enlightened internists who, like Osler, refer their patients for operation after three months' unavailing medical treatment is rapidly increasing. A further increase in the amount of goiter surgery will depend on our success in convincing the general practitioner and the patient of the safety of operation. A study of my recent methods with no mortality in 167 consecutive cases in comparison with earlier work, which was much less successful, may offer some suggestions to those interested in this subject.

EARLY OPERATION FOR SAFETY

As in many pathologic conditions, the safety of the patient may depend in large part on the early recognition and appropriate treatment of the disease by the general practitioner, and if this is unsuccessful, referring patients early for operation. If the physical condition is fairly good, the risk of surgery is slight. On the other hand, with delay there is danger of development of hyperthyroidism; of a dilated heart with irregular and intermittent pulse; a wrecked nervous system; eyes permanently bulged; growth of an intrathoracic goiter until emphysema has developed. No surgeon can operate with entire safety in such cases. The safety of the patient is in the hands of the internist who first sees and advises him.

PRELIMINARY STUDY OF DOUBTFUL CASES

The general physical examination is of greater importance than in most borderline conditions, and for the safety of the patient, it should be thorough and comprehensive. In our preliminary investigation, we have not merely the question of diagnosis of the disease with definite certainty that operation is indicated as soon as the diagnosis is established. A number of doubtful cases are entitled to further trial of medical treatment. With another group, the safety of our patient depends on deferring surgical treatment: a patient who may be greatly benefited by a suitable operation after a week or a month's proper preparatory treatment, might very readily succumb to an immediate radical operation. A third group of patients are best suited for the many-stage operation. In a fourth group of cases, immediate partial thyroidectomy may be advised with entire safety.

A decision as to what can be done with greatest safety should not be based on any single factor, for example, a study of the blood, but on the entire clinical

* Read in the Section on Surgery of the American Medical Association, at the Sixty-Second Annual Session, held at Los Angeles, June, 1911.

picture. Wilson and several other recent observers have questioned the value of blood-findings in goiter. The blood has been examined in the majority of my own cases by competent laboratory men, a considerable number of them from the laboratory of Dr. S. H. Burnett of Cornell University, whose book on the blood will be familiar to most workers in this line. The results have been entirely confirmatory of Kocher's statements, and my experience leads me to consider the preliminary blood examination of great value in determining what our course should be in the advanced exophthalmic cases. In nearly moribund cases, lymphocytosis may well be absent because the patient's power of reaction is destroyed. After operation, I have found in a number of examinations that the blood-picture again becomes normal.

The use of the *x*-ray as a curative measure has gained relatively few adherents and as a preliminary treatment is no longer advocated. In diagnosis it may prove an important aid, however. There can be no question about the possibility of outlining the position of many intrathoracic goiters by the *x*-ray. It may readily add greatly to the safety of operation to know exactly the location of some of the difficult growths. In connection with the *x*-ray diagnosis it is interesting to note that Garre of Bonn and other German workers believe that enlargement of the thymus has an important influence in the development of exophthalmic goiter, and Schultze has been able to outline the thymus in eighteen out of twenty cases with the fluoroscope.

The preliminary study is much more valuable when several workers, experienced from observation of a large series of cases, compare their findings. The internist who has examined a considerable number of cases preliminary to operation and who has kept himself informed as to the outcome in these cases; the laboratory man who makes the blood examination, which should include differential count and coagulation time as well; also examination of the urine; and the surgeon who sees most of the actual conditions inside the neck, should, for the safety of the patient, compare their findings. A single general physical examination is not always adequate to give an idea as to the safety of operation.

THE FATIGUE TEST

The character of the pulse, blood-pressure, heart's action, even the differential blood-findings and conditions of the urine may vary greatly at different times and under different conditions. Examination of a patient who has been kept at perfect rest for days or weeks and whose heart's action is relatively quiet and regular, may give an erroneous impression as to the safety of operation. On the other hand, a patient coming from a distance, fatigued and nervously distressed by a long journey, strange surroundings and what is regarded as an important consultation, may easily give the impression of a far worse operative risk than is actually the case. The exertion of going up stairs somewhat rapidly will give a better idea as to how the circulation will behave on the operating table in some cases. In other cases the exercise should be far less active; and in some it is evident that no extra exertion would be safe. After taking a somewhat long and careful history or after exciting conversation an idea may be gained of nervous and mental condition. Those not equal to an extra fatigue are obviously unfitted for radical, if for any, surgery; those reactng poorly are equal only to slight operations. Such tests of the effects of slight fatigue will often show that the patient is less fit for operation than at first appears.

The safety of operation, if after careful preliminary study immediate operation is decided on, is influenced by many of the factors under consideration before any surgical operation: the skill and experience of the surgeon, the care as to aseptic and antiseptic preparation; the choice of anesthesia to be used, etc.

ANESTHESIA

Probably a large proportion of the patients could be safely operated on by an experienced surgeon under almost any form of anesthesia, but to save the patients whose cases are critical some discrimination is necessary. Kocher for many years has used local anesthesia as a routine method with general ether anesthesia in a few selected cases. Mayo uses local anesthesia for some excisions, for ligations in toxic cases, and ether by the drop method as a routine, but so light an anesthesia that the patient frequently struggles and sometimes protests. Crile uses local anesthesia in combination with scopolamin and morphin hypodermically and nitrous oxid inhalation. Ochsner prefers to put the patient well under ether before beginning the skin incision and then completes the operation without further anesthesia. An increasing number use local anesthesia in selected cases. Practically all experienced men who use general anesthesia really only partially anesthetize their patients. The majority of operators still have a favorite general anesthesia which they employ in a favorite way (which varies anywhere from the open-drop method to breathing in and out of a closed bag), and this anesthesia and method they use in every case.

That such undiscriminating use of general anesthesia in goiter has resulted in many needless deaths, can scarcely be questioned. The angulation and compression of the trachea which is unavoidable with many growths, the rise in blood-pressure greatly increasing hemorrhage, the not infrequent degeneration of parenchymatous organs, the profound toxemia in the advanced exophthalmic cases—all of these factors certainly contra-indicate general anesthesia in many cases. The fact that the experienced men mentioned use such very light anesthesia or partial anesthesia really concedes the risk of general anesthesia. The fact that at least one-third of the goiter operations can be performed without any serious discomfort under proper methods of local anesthesia, and the number of obvious advantages in this mode of procedure, lead me to prefer it as a routine. Not only is there no interference with respiration in deeply located growths and less danger in toxic cases, but in all cases the hemorrhage is greatly reduced and the danger of injuring the recurrent laryngeal nerve is almost entirely obviated. I have not found it necessary to tie or strap my patients to the operating table as some do who prefer partial anesthesia. Many patients, even those who make considerable complaint, are really deeply in scopolamin-morphin sleep and do not later remember anything of the operation. It is frequently necessary to shout loudly to them to get a reply when working near the recurrent laryngeal nerve. Kocher has operated on over 600 consecutive simple goiters under local anesthesia without loss of life. I am not aware that so large a number of operations has ever been performed under general anesthesia without loss of life.

Crile's work seems to show that nitrous oxid-oxygen is the safest of the general anesthesia methods. In

perfectly simple cases in which it is evident that general anesthesia would be relatively free from risk, I now give my patients the choice of nitrous oxid by the Gatch method or local anesthesia, though always expressing my preference for the local method. In very young or nervous patients, I also frequently use nitrous oxid. In quite a number of cases, it is of advantage to use local anesthesia for the major part of the operation, giving nitrous oxid gas at those stages in which there is discomfort from digging out very deeply located or adherent growths. If any general anesthesia is to be used, the necessity for care and experience is evident. With the local and gas anesthesia, so little gas is given, and over so short a time in most cases, that it adds slightly if any to the risk.

Control of hemorrhage was one of the bugbears of thyroid surgery in earlier days. While this is well managed in our best clinics, the essentials deserve mention, for nothing is more important to safe thyroid surgery. Picking up all bleeding points, as is necessary for accurate anatomical dissection, so that the field may not be obscured by smearing with blood, reduces hemorrhage to a minimum. In case of important bleeding, packing with gauze while the surgeon goes to another part of the field temporarily, usually makes it easy to secure small vessels later. The half-sitting posture at present used by practically all who are doing any considerable number of goiter operations greatly reduces bleeding, specially venous hemorrhage. Dislocating the gland from its bed, thus giving ready access to the deeper blood-supply early in the operation, is a great advantage in most cases. The rise in blood-pressure incident to the use of ether or nitrous oxid greatly increases hemorrhage, while the dryer and cleaner field under local anesthesia makes it easier to immediately secure the main arterial and venous trunks. This greatly increased ease in the control of hemorrhage is one of the greatest advantages of the use of local anesthesia.

ASEPTIC AND ANTISEPTIC METHODS

Perfect wound healing, desirable in all surgery, is specially important for the safety of goiter surgery, for these toxic hyperthyroid patients show very little resistance to infection. Iodin being readily absorbed by the skin (aside from its relative inertness as an antiseptic) is contraindicated in skin disinfection for the reason that there is already too much thyreoiodin in the circulation. The development of exophthalmic symptoms from local use of iodin painted on the skin or applied as an ointment has recently been mentioned.[1] For the same reasons iodin catgut should be used sparingly in toxic cases. When gauze is used in packing the wound in the stage operation, plain gauze has proved entirely satisfactory. Iodoform gauze would certainly seem contra-indicated because of the iodin often set free from it. The use of Harrington's solution or other strong antiseptics to swab out the wound, with the idea that absorption of thyroid secretion is thereby lessened, has now been discarded by its originator.

1. Kocher: Brit. Med. Jour., 1910, ii, 931.

ANATOMY

Familiarity not only with the normal but with at least the most common anomalies is highly important for safeguarding important function as well as life. Anatomic structures entering into every goiter operation, familiar to all workers in this field, but seldom requiring consideration in other operations of general surgery, are the platysma muscle with its influence in producing an invisible, or if neglected, an ugly scar; the superior cervical nerves, which if thoroughly infiltrated with anesthetic solution give freedom from pain in the entire superficial dissection of the neck; the descendens hypoglossi nerve (formerly descendens noni), the motor nerve-supply of the sterno- and omohyoid muscles and the thyrohyoid muscles. The relations of the very common intrathoracic goiters to the pleura and the innominate and subclavian vessels and to the deep sympathetic, vagus and phrenic nerves may be of vital importance to the safety of our patient. Probably every experienced worker in this field has met troublesome hemorrhage from tearing off branches of these deep vessel trunks and disturbances of breathing from tugging on the respiratory nerves. Upward prolongations and deposits of masses of thyroid tissue in the region of the base of the tongue, the territory of the thyroglossal duct in the embryo, while not as common as intrathoracic goiter, is not infrequently met in my experience (5 per cent. of my first series of 100 and 2 per cent. of later series). The importance of the relations of the recurrent laryngeal nerve and the parathyroids has called forth a number of interesting papers. Probably the importance of injuring the parathyroids has been somewhat exaggerated, but if the thyroid is stripped from its capsule along the inner and posterior surface, the danger of injury must be slight. Saving the posterior capsule also safeguards the recurrent laryngeal nerve.

TEAM WORK

Team-work is as important for surgery as for any college crew or football team. No surgeon, however skilful, can do certain difficult operations to advantage without skilled assistance. Good team-work may easily make the difference between death or recovery in operations for desperate goiter. The essential members of the team, starting from the surgeon, are the assistant, operating-room nurse and the anesthetist, if general anesthesia is given. The surgeon who operates with an assistant, nurse and anesthetist of his own choosing, selected not on the basis of competitive examination but on tried fitness, has the decided advantage over the surgeon working with a team constantly changing personnel or with no team at all.

Great things could undoubtedly be accomplished for the progress of surgery in this country by the establishment of long-term surgical and medical resident services and more or less permanent assistantships in more of our leading hospitals, instead of the present system of short-term internships with the resulting horde of half-trained and ambitious men who come out to get their surgical experience at the expense of their patients. The long-term resident plan in Europe has been at the foundation of much progressive and efficient clinical work; it gives the trained team-work necessary to the highest success in much besides goiter surgery.

THE MANY-STAGE OPERATION

The situation in goiter surgery is quite different from that in surgery in many parts of the body. In the treatment of cancer of the stomach, it would be impossible to divide our operation into stages, opening the abdomen at one time, ligating a few important vessels at another and completing the operation at a third stage. Fortunately for our success, this is readily possible in the surgical treatment of goiter. What I have on several occasions termed the many-stage operation, seems to me a most important factor of safety in the surgical

treatment of exophthalmic goiter. Many years ago, Kocher advised preliminary ligation and others have followed his example. I was not aware that the surgical treatment of goiter had been divided into several minor stages at different times, varying from a few days to several weeks until I used this method, over three and a half years ago. During the past three years, I have operated in many desperate cases with ultimate satisfactory recovery. Many had hearts dilated to the axilla; at the beginning many were extremely anemic; nearly all of these had abumin and casts in the urine; persistent cough and diarrhea were present with a few; in several the heart's action was irregular, intermittent and feeble. All of these patients were treated by preliminary rest, tonic and hygienic measures. The operation itself was divided into many stages; in some, first, ligation of the superior thyroid on the least affected side; second, ligation of the artery on the side of greatest enlargement. Further treatment depends on the improvement after preliminary rest and ligation. In some the gland can be removed at once. In others the gland is simply exposed and the wound packed with sterile gauze. In these cases of worst risk, the fourth stage consists in removing the gland and again packing with gauze, and closing the wound at a fifth stage. The number of stages should be made as few as possible, but it is always better to keep within the limits of safety than to do too much. How far it is safe to go can be determined only by careful preliminary study of the case and a good deal of experience. It is certain that only a few patients in the most desperate condition are so ill that they cannot safely undergo a short skin incision and ligation of a superior thyroid vessel. This accomplished, the skin flap can be reflected in a few minutes, exposing the gland. If the sternohyoid and thyroid muscles are left undivided, no very troublesome adhesions are formed, after preliminary ligation. This is an improvement over my technic as reported a year ago when I was accustomed to divide the muscles and expose the gland. Sometimes after such division of the muscles when the patient's condition seemed to indicate considerable delay before completing the operation, adhesions became dense and troublesome. In several cases, I have left the gauze packed in place for a week or more before attempting closure as a fifth stage. In all cases the importance of a prolonged rest-cure is urged on the patients. They are given to understand that this is just as much a part of the treatment as the operation itself and unless they are willing to follow advice until a cure is obtained, operation has been refused. That many patients otherwise doomed to certain death can be rescued by the stage operation, I am thoroughly convinced. In my opinion, the two most important factors concerning the safety of the operation itself are the use of local anesthesia in the desperate cases and the many-stage operation; doing a little and getting out; carefully estimating what the patient is able to stand.

AUTHOR'S RESULTS

During the past eighteen months of my work at Ithaca and at Clifton Springs, Dr. Howard L. Prince, my associate, and I have performed 167 consecutive operations for exophthalmic goiter without loss of life (105 excisions and 62 ligations and partial operations). These were cases with unmistakable symptoms and it is, I believe, the largest number of operations for exophthalmic goiter yet reported without fatality. The cases have not been selected, the only patients refused operation being those in a desperate state who died medical deaths without surgical interference, in from twelve hours to three weeks from the time when they were seen and advised not to undergo operation. The results have come, I believe, more from the methods adopted, cooperative study of the probable resistance of each patient, and attention to many details, than from any special operative skill. That a later equal number of operations, including as many desperate cases, would result as fortunately is doubtful, but I believe the risks from operation itself are slight and mostly accidental. Kocher has shown from experience in about 5,000 operations, and several of his followers in series of several hundred cases, that the mortality rate need not exceed a small fraction of 1 per cent. in simple goiter. Personal experience convinces me that with attention to the details mentioned a 1 per cent. mortality (far less than for medical treatment in similar cases) is well within the range of possibility in exophthalmic goiter. This degree of safety is equaled in few other conditions of equal gravity.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ROGERS AND TINKER

DR. A. J. OCHSNER, Chicago: Until recently our views regarding exophthalmic goiter have been based on a rather crude conception of hyperthyroidism, which we have received from Moebius. What this hyperthyroidism in itself represents we do not know, although the work that Dr. Rogers is doing will undoubtedly explain the elements of this condition. After we have Dr. Roger's analysis and that of many others who are working in this direction, our conception will undoubtedly be clear. Whether this can happen in the immediate future remains to be seen. There are many most acute, active and industrious observers who are working in this field.

Up to the present time we find all of the tissues of the body burdened with this hyperthyroid poison. It is a condition very much like poisoning with venom, which you can see pass over the patient. Occasionally a patient shows definite periods of poisoning. A period of excitement will be followed by an increase in the thyroid circulation, and within a few hours this patient will be almost overcome by the presence in his circulation of this substance which Dr. Rogers has partly analyzed, and which he will undoubtedly analyze completely.

So far as we were concerned up to the present time it was possible in some instances to reduce this hyperthyroidism by supplying the most favorable possible conditions of hygiene, rest and absence of excitement, and especial forms of nourishment. In other cases it was possible to prevent the formation of this substance by mechanically obstructing the blood-supply. In severe cases this was the first thing to do, to reduce as much as possible the blood-supply by ligating one or two or even three of the superior and inferior thyroid arteries and veins, so that the gland would have less material out of which to produce this poisonous substance. The next step was to remove a portion of the secreting glands, if we could determine what portion caused this hypersecretion, and if it seemed from the general condition of the patient that this could be done with safety. When we know more about the character of this secretion then we may be able to approach it from an entirely different side.

As regards the subject considered by Dr. Tinker, I would say that almost all of us who have operated in a large number of these cases considered our success to be due to this, that or the other feature, and after a while we dropped each of these features and our patients recovered precisely as rapidly and with precisely the same lack of danger as they did when we considered those the important elements in our success. There was a time when, following Kocher's method, almost everyone considered local anesthesia as the only safe means of performing this operation. There are several elements in

the use of local anesthesia which are exceedingly valuable, namely, in the first place, you are compelled to pay closer attention to your operation when the patient is awake than when he is asleep. It is not possible to sit and think while you are trying to make out what to do. Again you must do the operation, if it is performed under local anesthesia, with the least possible amount of traumatism. I believe that any surgeon who tends to be violent in his operative procedures should operate under local anesthesia, because the patient will not submit to a violent operation, and the surgeon will thus be prevented from doing harm. In my own clinic I have repeatedly operated under local anesthesia, but only rarely during the past four or five years, because experience has shown that this does not increase the safety. The method that I have found safe and satisfactory consists in giving the patient ¼ gr. morphin hypodermically, and 1/100 gr. atropin one-half hour before the anesthesia is given. The patient is then thoroughly anesthetized with ether by the drop method, placing the patient in a horizontal position until fully anesthetized and then elevating the head by placing the patient in the inverted Trendelenburg position at an angle of 45 degrees, causing an anemia of the brain, which lasts throughout the operation. The atropin prevents the accumulation of mucus in the larynx and that does away, virtually, with any possibility of pneumonia. So that these patients do not have pneumonia after the use of the anesthetic. The morphin prevents the sensitiveness and reduces the amount of anesthetic required.

The heart is improved by the use of ether. I have never yet seen a case in which the heart was not better after the anesthetic than before; and being under the influence of this morphin for half an hour before the anesthetic is begun, the patient goes under the anesthetic without the slightest excitement. Thus we make use of the principle which our distinguished President brought out some years ago.

DR. JOHN ROGERS, New York: I wish to call attention to the comparative simplicity of these phenomena. They may all be referred to the thyroid alone or to the thyroid in connection with the associated glands. I must warn against operating on patients indiscriminately. Thyroidism can often be relieved by feeding substances not found in the thyroid. These preparations to which I have referred, which cannot be obtained commercially now, the Cornell Medical College will supply to you on request. There are many times when the use of the commercial thyroid is injurious; in fact, in the majority of cases it is injurious, on account of the chemical composition of the substance, as it does not contain all the normal ingredients of the gland.

In spite of what Dr. Ochsner has said, I must strongly advise against the use of ether. It is very easy under local anesthesia to make whatever division of vessels is necessary, or under nitrous oxid to remove whatever part of the thyroid you desire.

DR. MARTIN B. TINKER, Ithaca, N. Y.: I have for many years championed the use of local anesthesia for this work and for much other surgery. A final decision as to its value may safely be left to those men who have had surgical experience, and who will take the trouble to see the work done properly under local anesthesia and compare it with the work done under general anesthesia. Not one, but many men have been converted to the use of local anesthesia in these cases after seeing it properly employed.

I have had experience in doing the work and seeing it done under both methods; not that I have had a great deal of personal experience with ether, but I had to give it in my early experience for others. If any of you see the relative simplicity of the local anesthesia method, the comfort and the safety of your patients, many of them desperate cases, and are not convinced, then I have nothing further to say.

Protozoa.—Verworn in 1888 made the statement that protozoa seem to have been especially adapted by nature for the purposes of the physiologist, for here, in the single cell, are performed all of the functions which higher animals perform. —Calkins in *Science*.

THE PHENOLSULPHONEPHTHALEIN TEST FOR ESTIMATING RENAL FUNCTION *

J. T. GERAGHTY, M.D., AND L. G. ROWNTREE, M.D.
BALTIMORE

INTRODUCTION

In July, 1910,[1] we presented our original communication on the results obtained on our experimental and clinical studies of the functional activity of the kidneys by means of phenolsulphonephthalein. Some additional data were presented in subsequent papers.[2] The present communication is a summary of our experience with the test during the past two years,[3] and deals particularly with its value in relation to nephritis.

Phenolsulphonephthalein,[4] which was first prepared by Remsen, is a bright red crystalline powder somewhat soluble in water and alcohol, but readily soluble in the presence of alkalies. The drug, as determined by Abel and Rowntree, is non-toxic, excreted with extraordinary rapidity, and appearing in the urine normally within a few minutes of injection. In alkaline solution a brilliant red color is produced, which is ideally adapted for quantitative colorimetric estimations.

TECHNIC

Twenty minutes to half an hour before administering the test, the patient is given 300 to 400 c.c. of water in order to insure free urinary secretion, otherwise delayed time of appearance may be due to lack of secretion.

Under aseptic precautions a catheter is introduced into the bladder, and the bladder completely emptied. Noting the time, 1 c.c. of a carefully prepared solution of the phenolsulphonephthalein containing 6 mg. to the cubic centimeter is accurately administered subcutaneously, intramuscularly or intravenously by means of an accurately graduated syringe. (We have used the Record 2 c.c. syringe, which is graduated in fifths of a cubic centimeter.)

The urine is allowed to drain into a test-tube in which has been placed a drop of 25 per cent. sodium hydroxid solution, and the time of the appearance of the first faint pinkish tinge is noted.

In patients without urinary obstruction, the catheter is withdrawn at the time of the appearance of the drug in the urine, and the patient is instructed to void into a receptacle at the end of one hour, and into a second receptacle at the end of the second hour.

A rough estimate of the time of appearance can be made by having the patient void urine at frequent intervals, without the use of the catheter. In prostate cases it is wise to have the catheter in place until the end of the observation.

When a catheter is to be employed, it is well to previously have the patient under the influence of hexamethylenamin.

Sufficient sodium hydroxid (25 per cent.) is added to make the urine decidedly alkaline in order to elicit the maximum color. The color displayed in the acid urine is yellow or orange, and this immediately gives place to a brilliant purple-red color when the solution becomes alkaline. This solution is now placed in a liter measuring-flask and distilled water added to make accurately 1

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* From the Genito-Urinary and Medical Clinics of the Johns Hopkins Hospital and the Pharmacological Laboratory of the Johns Hopkins University. Read before the New York Academy of Medicine, May 4, 1911.

1. Rowntree and Geraghty: Jour. Pharm. and Exper. Therap., July, 1910, I, 579.
2. Rowntree and Geraghty: Ann d. mal. d. Org. genito-urin., 1911, i, Nos. 4 and 5; Geraghty and Rowntree: Tr. Assn. Am. Gen.-Urin. Surg., 1910, p. 59.
3. Detailed reports of our later studies will shortly appear.
4. Am. Chem. Jour., vi, 280.

liter. The solution is then thoroughly mixed, and a small filtered portion taken to compare with the standard which is used for all of these estimations.

Recently the Hellige hemoglobinometer, especially modified for use in connection with phthalein work, has been utilized. A standard alkaline solution, 6 gm. to a liter, is placed in the wedge-shaped cup. The urine collected is diluted to a liter and a small filtered portion poured into the rectangular cup. The wedge-shaped cup is now manipulated by means of the screw until the two sides of the color field are identical. The percentage on the scale is now noted. This instrument is much cheaper than the Duboscq and approximately accurate. Fairly accurate estimations, however, can be obtained by means of graduated cylinders—equal quantities of the standard solution and the diluted urine being used in separate cylinders, and the denser solution being diluted until the colors become identical. The amount of drug in the solution being known, the amount in the urine can be readily calculated.

When the collected urine has been made strongly alkaline, it is necessary to estimate the phthalein within a few hours, as the red color fades gradually under these conditions. When it is desirable or necessary to defer the estimation for some hours or days, it is better to make the urine distinctly acid, under which condition the phthalein remains unchanged. It should, of course, be made alkaline again when the estimation is made.

EXCRETION IN NORMAL INDIVIDUALS

The excretion has been studied in several hundred normal individuals. In our earlier work subcutaneous administration was used exclusively, the drug appearing in the urine in from five to eleven minutes, 38 to 60 per cent. (average 50 per cent.) being excreted in the first hour after its appearance in the urine, and 60 to 85 per cent. for two hours. In health the elimination is practically complete in two hours, only a trace being present during the third and fourth hours.

Recently intramuscular and intravenous injections have been employed. The time of appearance following the intramuscular administration is practically the same as that after the subcutaneous, but the output averages 5 to 10 per cent. more for the first hour. Following the intravenous injection, the drug normally appears in from three to five minutes, and from 35 to 45 per cent. of the drug is eliminated in the first fifteen minutes, 50 to 65 per cent. in the first half hour, and 63 to 80 per cent. during the first hour. This rapidity of the excretion, following intravenous administration, is exceedingly striking, and when this method is employed, observations for a quarter-hour or half-hour period only should be employed. For general use, however, we advocate the lumbar intramuscular method (the latter particularly when edema is present), as the technic involved is much simpler and the results obtained are reliable. The technic of the test is exceedingly simple. The injection is given, time of appearance noted, and collection of urine made for one or two hours. To each sample sufficient sodium hydrate is added to insure alkalinity and maximum intensity of color; then the urine is diluted to 1 liter, a small amount is filtered, the reading made, and the percentage of drug excreted is calculated.

INFLUENCE OF AMOUNT OF URINARY SECRETION

The excretion of the drug does not run parallel to the excretion of urine. It is immaterial as far as the excretion of the drug is concerned whether the urinary output is 50, 200, 400 or 500 c.c. Similarly, the output does not seem to be much influenced by the previous administration of the different diuretics. Experimentally, on animals it was found that those diuretics (caffein, urea, dextrose, phloridzin, calomel) which are thought to exert a stimulating influence on the cells of the renal tubules, slightly increase the phthalein output, whereas those diuretics (hypertonic sodium chlorid, potassium nitrate and digitalis) which act entirely by mechanical factors as by changes in osmotic tension, or changes in blood-pressure, slightly decrease or cause no change in the excretion of phthalein. No definite influence was noted in man, following the dosage usually employed for diuresis, one-hour estimations being made.

THE STUDY OF NEPHRITIS

Heretofore, functional tests have not been considered of any great value to the clinician in relation to nephritis. In fact, hyperpermeability to methylene blue, indigo-carmin and rosanilin has been shown to exist in acute and in chronic parenchymatous nephritis, while, on the other hand, decreased permeability with slow appearance and prolonged excretion has been demonstrated in the chronic interstitial variety.

ACUTE NEPHRITIS

An opportunity to study only five cases of acute nephritis has presented itself.

While no conclusions can be drawn from five cases, it is sugestive that in none of them was there increased permeability, but that, on the contrary, the permeability was markedly decreased when the condition was considered clinically grave.

CHRONIC PARENCHYMATOUS NEPHRITIS

In all, twenty-one cases belonging to the clinical type of parenchymatous nephritis have been studied. These cases represent different grades of severity and the duration of the disease varies from a few weeks to seven years.

In two very mild cases of short duration showing only slight edema, with albumin and casts, but with a normal urinary output, the time of appearance of the drug and the amount excreted was normal. In one of these cases the time of appearance was eight minutes and the output 52.5 per cent. for one hour. The second patient was a student who considered himself perfectly well, but in whose urine albumin and casts were discovered by chance. On close inspection, a slight edema about the eyes was detected. No other evidence or suggestion of the disease could be found. In this instance 53 per cent. for the first hour and 8.6 per cent. for the second hour was excreted following subcutaneous injection.

In cases of longer standing, or those in which the disease is of ordinary severity, the time of appearance has always been delayed slightly (ten to twenty-five minutes) and the amount excreted is definitely below normal.

In the most severe grades of chronic parenchymatous nephritis, or those in which the disease is of long standing and associated with secondary sclerotic changes, the output is reduced very markedly, and in some instances no trace of the drug can be found in the urine. Here, also as in the interstitial type, the absolute failure of excretion, or the excretion of a mere trace, has been followed within a short time by death from renal failure.

Although the number of cases of chronic parenchymatous nephritis has not been very large, sufficient data

have been collected to indicate that the test is of decided value in revealing the functional efficiency of the kidney in this condition. In the mild cases very little disturbance of function is indicated, and it may be impossible from the test alone to differentiate this condition from albuminuria. When there is a marked decrease in the phthalein output, marked renal changes are present, and when only excreted in traces, or not at all, a grave prognosis should be given, though no signs of uremia exist.

CHRONIC INTERSTITIAL NEPHRITIS

Twenty-two cases of the type clinically classed as chronic interstitial nephritis have been under observation. In many of these cases, previous to the administration of the phthalein test, no accurate idea of the degree of involvement of the renal function could be ascertained even after the most careful clinical study. The phthalein test has proved itself of immense value in revealing the degree of destruction of the renal substance, and has demonstrated itself to be of extreme importance from the standpoint of both diagnosis and prognosis.

In most of the cases of this series the time of appearance has been markedly delayed and the output of phthalein markedly decreased; where the output is lowest, the delay in appearance is most pronounced. The time of appearance, however, is not so important as the amount of excretion.

The following case is cited as an example of the accuracy of the test in revealing the true renal condition:

CASE 1.—*Patient.*—S. B. G., aged 55, surgical No. 25.174, was admitted Dec. 21, 1909, complaining of difficulty and frequent urination. These urinary symptoms were dependent on prostatic enlargement, the residual urine amounting to 440 c.c.

Examination.—Patient was apparently in good physical condition, well nourished, but slightly anemic. Urine slightly cloudy, acid, specific gravity 1,010, no sugar, slight trace of albumin and no casts. Urinary output 2,000 c.c. in twenty-four hours, urea ranging from 20 to 30 gm. for twenty-four hours. The phthalein test was given, a faint trace appearing in forty minutes, and at no time was more than the merest trace detected.

Repeated subsequent tests yielded always the same result. One week after administration the patient began to exhibit signs of uremia, which gradually increased until deep coma ended in death.

Autopsy.—Both kidneys presented marked atrophy, neither organ weighing one-third of normal, a severe grade of interstitial nephritis being present.

This case is of particular interest because of the fact that the urinary output, the urea, the total solids and the total nitrogen were normal and casts were also absent.

In the following case the diagnosis was exceedingly obscure until the evidence brought forward by the test was added. Before the administration of the test, nephritis was only one of many possibilities entertained.

CASE 2.—*Patient.*—Mrs. O., aged 47, admitted March 23, 1911, noted fatigue and dyspnea on slight exertion, together with slight edema of lower extremities. In December nausea and vomiting developed and have been present almost constantly since.

Examination.—The patient was poorly nourished and showed marked anemia; no edema of extremities. Urine was pale yellow, specific gravity 1,011, albumin, a trace; no casts on repeated examinations. Blood-pressure was 135. Eye-grounds were negative. Although nauseated, the patient was mentally bright and seemed in no immediate danger.

The phthalein test showed no output in three hours. Two days later the patient became irrational, dying within forty-eight hours in uremic convulsions. No autopsy was obtained.

The following case shows even more strikingly the ability of the phthalein test to reveal the presence of nephritis in the absence of any definite clinical evidence.

CASE 3.—*Patient.*—L. G., aged 12, admitted March 27, 1911, presented an interesting case of diabetes insipidus. The past history contained nothing of importance, except that large quantities of urine had been voided for some time and he experienced marked thirst.

Examination.—He was well nourished, not anemic, and apparently a normal-looking boy. His blood-pressure ranged from 80 to 90 m.m. Hg. Some thickening of the radial arteries was noted. No eye changes. The urine on admission was large in amount, 2,000 to 2,500 c.c., clear, specific gravity 1,005 to 1,010; no albumin, no casts. At this time no suspicion of nephritis was entertained. The phthalein test, performed March 28, showed an output of only 7 per cent. for two hours. Three days later only 2 per cent. was excreted. With the exception of the phthalein findings, absolutely no evidence of nephritis was present at this date. A week later the patient developed headache and a trace of albumin appeared in the urine. He rapidly became uremic and died April 9, 1911.

Autopsy.—A most intense grade of chronic interstitial nephritis was present, with almost complete disappearance of the cortex. A slight grade of acute nephritis was superimposed.

Chronic nephritis can exist over a long period without recognition, and may even exist in the absence of albumin and casts in the urine. The following is another case illustrating the presence of nephritis in the absence of positive clinical proof, and also the value of the phthalein test in revealing its existence.

CASE 4.—*History.*—F. G., aged 71, who had had six previous admissions for malaria, febricula, acute rheumatic fever and arthritis deformans during the last five years, was again admitted Nov. 7, 1910, for vertigo and attacks of loss of consciousness. Numerous urinalyses during these admissions failed to demonstrate any anomaly, except a trace of albumin at one single examination. An advanced arteriosclerosis and high blood-pressure were recorded on previous admissions.

Examination.—Urine was pale, 1,012, acid, albumin, occasional trace, no casts. Phthalein examination showed an output of only 5 per cent. for the first hour and 10 per cent. for the second, indicating a severe grade of nephritis.

Shortly afterward patient died of bronchopneumonia.

Autopsy.—Atrophy of the right kidney as the result of an old thrombosis of right renal artery, with chronic diffuse nephritis on the left side, small granular kidney.

UREMIA

In twenty-one cases under study, uremia has been present. Of this number, in fourteen uremia was grave; the patients exhibited nausea, vomiting, drowsiness or coma, and in several instances convulsions. In the remaining seven, mild symptoms only were present and had persisted over prolonged periods. Nine of the fourteen patients with grave uremia died during the attack. In all of these cases the phthalein elimination was zero or a faint trace only for two hours.

In two of the five patients recovering from their uremia, the output was 20 per cent., the uremia being the result of an acute exacerbation of a chronic nephritis. In two the output was 14 per cent.; in both of these the uremia was precipitated by a double pyelonephritis. The fifth case was one of acute exacerbation of chronic pyelonephritis in a man previously having had a nephrectomy. This last patient has greatly im-

proved, and at present has a two-hour excretion of 13 per cent.

In the seven mild cases, exhibiting slight but persisting symptoms of uremia, the excretion respectively was as follows: 10 per cent. in one, 7 per cent. in three cases, a trace in two, 2 per cent. in the other for two hours. Five of these patients died within three months of the performance of the test. Those living are still exhibiting evidences of chronic uremia, four months having intervened in one instance.

Of four patients not exhibting uremia at the time of the test, but in which the phthalein output was below 8 per cent. for two hours, one excreting 6 per cent. died within two months, another within three months, and the other two are still living, in one two months, and in the other three weeks intervening, but both are exhibiting evidence of chronic uremia.

THE STUDY OF CARDIAC AND CARDIORENAL CASES

An attempt has been made to differentiate by means of this test between those cardiac cases with broken compensation or with passive congestion associated with the presence of albumin and casts in the urine and those cases in which cardiac insufficiency is associated with varying grades of true nephritis. In this connection thirty-three cases have been studied. From this study there appears to be no doubt but that decrease in function accompanies marked passive congestion of the kidneys in the absence of any true nephritis. As the cardiac condition improves, however, the passive congestion becoming less marked and edema subsiding, the output of phthalein increases, and in one case rose from 16 per cent. to normal in the course of one week, the patient in the meantime losing 70 pounds in weight with the disappearance of a general anasarca. We feel that the phthalein test will prove of value in determining what degree of renal efficiency exists in this class of disease, and subsequently with improvement in the cardiac condition and the disappearance of edema, a continued low phthalein excretion will indicate with considerable certainty the presence of permanent organic changes in the kidney. We feel, however, that a much larger series should be studied clinically and at autopsy before very definite conclusions can be drawn.

MISCELLANEOUS CASES

A large number of miscellaneous medical diseases have also been studied from the standpoint of phthalein excretion, among the number being ten cases of lobar pneumonia. In pneumonia the output is little if any decreased, and does not run parallel with the chlorid excretion. Three cases of persistent albuminuria have shown a normal output. In no disease other than renal, so far studied, has a marked reduction of the phthalein excretion been encountered.

THE RELATION OF PHTHALEIN OUTPUT TO BLOOD-PRESSURE, TO CHANGES IN THE EYE-GROUNDS AND TO THE BLOOD-PICTURE

In the majority of cases of chronic nephritis in which the blood-pressure has been high, the phthalein elimination has been markedly decreased, but no exact parallelism exists, inasmuch as not a few instances have been encountered in which the systolic pressure has been over 200 mm. Hg; and the phthalein output one-half of normal, while on the other hand there have been instances in which the blood-pressure has been normal while the phthalein output has been zero or nearly so, the patients shortly after dying in uremia. While a high blood-pressure, when present, is considered of diagnostic and prognostic value taken in conjunction with other clinical data, yet many patients died of renal insufficiency and exhibited a blood-pressure which was normal or practically so. Nor is the blood-pressure, even when high, increased in inverse proportion to the decrease in renal function.

While in some instances marked changes in the eye-grounds, choked disk, tortuous vessels, hemorrhages, etc., have been present coincident with a very low phthalein output, in many cases, even of the most advanced and even fatal nephritis, no changes whatever in the eye-grounds could be detected, the patient at the same time failing to eliminate the phthalein.

Moderate or rather severe grades of secondary anemia in the absence of disease of the kidneys can be present without any diminution in the phthalein elimination; for instance, two patients, one with 2,500,000 red cells, and hemoglobin 30 per cent., the other with hemoglobin 30 per cent., eliminated 61 and 57 per cent. for two hours, respectively.

VALUE OF TEST FROM A SURGICAL STANDPOINT

Through the encouragement of Dr. Hugh H. Young we have been enabled to study the phthalein excretion in a large series of cases of urinary obstruction, in order to determine the value of the test in revealing the functional capacity of the kidney in these cases. This is a consideration of grave importance in this connection, since the development of uremia or renal failure has been responsible for a great part of the mortality following surgical interference.

As a result of obstruction in the lower urinary tract, pathologic changes may occur in the ureters and kidneys, dilatation of the ureters, varying grades of hydronephrosis, and as a result of the continued high pressure, atrophy of the parenchyma of the kidney. Not infrequently, infection occurs with the development of a pyelitis, a diffuse or localized pyelonephritis, or pyonephrosis. The occurrence of these complications is often difficult of recognition, and is often overlooked, particularly in the absence of symptoms of renal inadequacy. A large proportion of these cases of urinary obstruction have cystitis associated with albuminuria. The presence of casts in the urine is no contra-indication to operation. The urinary output may be normal, also the urea and total solids, and yet the patient may be on the verge of renal failure and disastrous results may follow surgical interference.

The test has been used in 100 cases of urinary obstruction, mostly cases of prostatic hypertrophy. The technic involved in these cases necessitates the use of a catheter, otherwise it does not differ from that described above.

In the majority of cases, the test indicates a more or less degree of renal impairment, and taken in conjunction with the clinical condition it is of more value than the study of urine output, total solids, total nitrogen, and urea estimations combined.

A marked decrease in the amount excreted invariably means severe derangement of renal function, which may be of either a temporary or permanent character. Under such conditions one should proceed with extreme caution, and no surgical intervention should be attempted without further study together with preliminary treatment. Under this regime, repeated functional tests will demonstrate eventually the nature of the derangement, for in true interstitial nephritis the output will continue low, whereas if the derangement is purely functional or secondary to pyelonephritis, usually improvement will

follow as a result of the treatment and will be indicated by a decrease in the time of appearance of the drug and simultaneously an increase in the amount eliminated.

The functional derangement due to infection in these cases is a much more dangerous condition than is the presence of even a fairly advanced condition of interstitial nephritis. The use of the test enables one to select the most favorable time for operation. In cases exhibiting a continued suspiciously low output, the use of nitrous oxid gas, or spinal anesthesia, is suggested as preferable to ether in order to protect the kidneys. When only a trace of the drug continues to be excreted, prostatectomy should not be attempted, even though the patient presents no evidence of uremia.

In our original paper we stated that a dropping phthalein output was a contra-indication to operation except in cases of necessity. This decrease in function usually means some change in the renal condition and in most of our cases it has been caused by the development of a pyelonephritis or an exacerbation of an old process. It is obviously wise to wait until the kidneys have recovered from this acute shock before subjecting them to further injury through operation.

The test can be used to equal advantage preliminary to any surgical procedure, when it is deemed important to know the true functional capacity of the kidneys.

TECHNIC OF THE PHTHALEIN TEST AS APPLIED TO ESTIMATION OF THE FUNCTION OF THE INDIVIDUAL KIDNEY

Functional tests have already demonstrated their value in this connection. But they have at most been able to determine only the relative working capacity of each kidney and have shed very little light on the absolute functional capacity of each organ.

The phthalein test in association with ureteral catheterization has been used in seventy cases of unilateral or bilateral disease.

Twenty minutes previous to examination 600 to 800 c.c. of water are given to the patient in order to insure a free flow of urine. The ureters are then catheterized.

As it is essential to collect all the urine secreted by each kidney during a definite period of time, in order to do accurate quantitative work, a form of ureteral catheter especially devised for this purpose has been used. The flute end catheter of Albarran, No. 6, or preferably No. 7, has been found to be most satisfactory. The catheters which have only side openings and no end opening cannot be depended on for this purpose.

The catheters are passed up into the ureters to a distance of four inches. The cystoscope is then withdrawn, leaving the ureteral catheters in position. A small ureteral catheter is now passed into the bladder and the bladder thoroughly emptied, so that leakage, should it occur, can be detected.

The time of injection is recorded, as is also the time of the appearance of the drug on each side. Starting from the time of appearance, the collection is then continued for one hour following subcutaneous or intramuscular injection. The amount of drug in each specimen is then estimated by the technic described above.

RESULTS OBTAINED WITH THE PHTHALEIN TEST

In normal cases the time of the appearance of the drug from the two sides has been almost always the same, and in the majority of cases this has been five to ten minutes following subcutaneous and three to five minutes following intravenous. The time, of course, will vary somewhat with the rate of urinary secretion. Normally the amount excreted by each kidney will be practically the same. The series of cases studied include tubercular or pyogenic infection, unilateral or bilateral, calculi, hydronephrosis, hypernephromata, etc.[5]

UNILATERAL OR BILATERAL SURGICAL DISEASE OF THE KIDNEY

It has been demonstrated that the time of appearance and the percentage of output is practically the same for the two healthy kidneys. When one kidney only is diseased, the time of the appearance of the drug is delayed on the diseased side, and the amount excreted is not only relatively but absolutely decreased. The amount of delay in the time of appearance is comparatively of little value. Reliance is only to be placed on the quantity excreted during a period of one-half or one hour, depending on the method of administration.

Although in the majority of these cases of unilateral disease the combined output is equal to that of two normal kidneys, the greater part of the excretion is shown to be performed by the healthy kidney. In proportion to the decrease in function on the diseased side, approximately there is a proportionate increase in the function on the healthy side. In such cases following nephrectomy the remaining kidney eliminates after the lapse of two or three weeks an amount of drug which is normally excreted by two healthy kidneys. In all cases studied, the output from the remaining kidney has been greater than the combined output from two kidneys prior to operation.

In bilateral disease it has been found possible to determine the individual function (absolute or relative) of each kidney. It is in this class of cases particularly that the shortcomings of other functional tests have been most apparent, as one kidney may be doing twice or three times the amount of work of the opposite kidney, and still be unable to assume the additional work of the other kidney. It may be doing the major part of the work at the expense of all, or nearly all, of its reserve power, but the phthalein test determines whether the kidney has a functional capacity which is normal, less than or greater than normal and to what degree. In three cases of double renal tuberculosis, in which the amount of pus from each side was practically the same, the test permitted it to be determined that one kidney in each instance had a function greatly in excess of the other, indeed sufficient functional capacity to allow of successful nephrectomy, marked improvement in general condition occurring subsequently in each case.

In six cases out of seventy we have found that the catheters caused some inhibitation of function, as was also observed by Keyes Jr. and Stevens. This influence can readily be estimated by taking the total function either before or after catheterization.

The test has been used by us simultaneously with cryoscopy, phloridzin, indigo-carmin, and the polyurea test of Albarran. No particular advantage was added by combining with one or all.

CONCLUSIONS

1. The phenolsulphonephthalein as used by us has many advantages over all other functional tests thus far proposed.

2. Phenolsulphonephthalein itself is better adapted for use as a functional test than any other drug previously employed for the same purpose on account of its

5. The details concerning forty-two of these cases are considered in previous communications, Tr. Am. Assn., G.-U. Surg., 1911, and Ann. d. mal. d. org. génito-urin., February and March, 1911.

early appearance in the urine and the rapidity and completeness of its elimination by the kidney and the reliance to be placed on its findings.

3. The method of quantitative estimation of the amount of drug excreted is simple and exceedingly accurate.

4. It is of immense value from a diagnostic and prognostic standpoint in nephritis, inasmuch as it reveals the degree of functional derangement in nephritis whether of the acute or chronic variety.

5. In the cardiorenal cases the test may prove of value in determining to what degree renal insufficiency is responsible for the clinical picture presented.

6. The test has proved of value not only in diagnosing uremia from conditions simulating it, but has also successfully indicated that uremia was impending when no clinical evidence of its existence at the time was present.

7. The test has proved of great value in revealing the true renal condition in cases of urinary obstruction. It is here of more value than the urinary output of total solids, urea or total nitrogen and enables the surgeon to select a time for operation when the kidneys are in their most favorable functional condition. The improvement in the renal condition in cases of urinary obstruction, following the institution of preliminary drainage, is strikingly indicated by this test.

8. In unilateral and bilateral kidney disease the absolute amount of work done by each kidney, as well as the relative proportion, can be determined when the urines are obtained separately. We do not feel that this is always mathematically accurate, but in our series it has indicated the functional capacity to a degree not attained by any other test.

It is with the greatest pleasure that we thank Dr. Young for his early and continued interest in this work, and for the generous supply of clinical material referred to us by him, by Dr. Barker, Dr. Thayer and the other members of the hospital medical staff for the opportunity of studying the cardiac and nephritic cases, and Dr. F. W. Hobleman for his valuable assistance in carrying on the work, and Dr. Dunning of Hynson, Westcott, for kindly furnishing us with the phenol sulphonephthalein used throughout this study.

SOME OBJECTIONS TO THE USE OF ALUM BAKING-POWDER*

WILLIAM J. GIES, PH.D.
NEW YORK

I. INTRODUCTION

During a period of about seven years I have occasionally conducted experiments on the effects of aluminum salts. These studies have convinced me that the use in food of alum or any other aluminum compound is a dangerous practice. That the aluminum ion is very toxic is well known. That "aluminized" food yields soluble aluminum compounds to gastric juice (and stomach contents) has been demonstrated. That such soluble aluminum is in part absorbed and carried to all parts of the body by the blood can no longer be doubted. That the organism can "tolerate" such treatment without suffering harmful consequences has not been shown. It is believed that the facts in this paper will give emphasis to my conviction that aluminum should be excluded from food.[1]

II. EXPERIMENTS BY HOUSE AND GIES ON THE EFFECTS OF ALUMINUM COMPOUNDS ON THE GROWTH OF SEEDLINGS

Several years ago, in collaboration with House, I published the general results of a study of the influence of aluminum compounds on typical seedlings. The essential facts in that connection were summarized in the appended statement and accompanying table (Table 1).[2]

Although aluminum compounds appear to exist in small proportions in many plants, and occur in traces in some animals, relatively little has been learned regarding the biological effects and significance of aluminum. The authors have begun a series of studies in this connection, the first of which has been an investigation of the influence of aluminum on lupin seedlings. The methods described by True and Gies[3] were used, and the following compounds were taken: aluminum sulphate, aluminum nitrate, aluminum chlorid, aluminum-sodium chlorid, potassium alum, and ammonium alum. The accompanying table (1) presents some of the more significant results, which represent the average of very many observations for periods of forty-eight to seventy-two hours.

In nearly all cases, in these experiments, little or no effect was produced at a concentration of *m*/65,536 [i. e., per liter the molecular weight in grams divided by 65,536]. In concentrations greater than *m*/65,536, growth usually was markedly inhibited. In concentrations less than *m*/65,536 and down to *m*/1,048,576, or *m*/2,097,152, growth was stimulated as a rule.

TABLE 1.—DATA SHOWING THE COMPARATIVE EFFECTS OF ALUMINUM COMPOUNDS ON THE GROWTH OF LUPIN SEEDLINGS

Aluminum Compound	Greatest Molecular Concentration that Permitted Slight Initial Growth	Least Molecular Concentration in Which There Was No Growth After 24 Hours	Greatest Molecular Concentration in Which Growth Was Equal to that in the Water Control	Molecular Concentration in Which Initial Stimulation Took Place	Molecular Concentration in Which the Maximum Stimulation Occurred
	m/x	*m*/x	*m*/x	*m*/x	*m*/x
$Al_2(SO_4)_3$ ...	8,192	16,384	65,536	131,072	1,048,576[1]
$Al(NO_3)_3$	1,024	16,384	65,536	131,072	1,048,576
$AlCl_3$.....	2,048[2]	2,048[2]	65,536[3]	131,072[4]	131,072
$AlCl_3NaCl$ ...	16,384	32,768	65,536	131,072	131,072
$KAl(SO_4)_2$ ...	1,024	4,096	32,768	65,536	131,072 and 524,288
$NH_4Al(SO_4)_2$..	8,192	16,384	131,072	262,144	524,288

1. The concentration of aluminum in a *m*/1,048,576 $AlCl_3$ solution is 0.000,003 per cent.
2. The concentration of aluminum in a *m*/2,048 $AlCl_3$ solution is 0.001,3 per cent.
3. The concentration of aluminum in a *m*/65,536 $AlCl_3$ solution is 0.000,04 per cent.
4. About midway between *m*/131,072 and *m*/65,536. The concentration of aluminum in a *m*/131,072 $AlCl_3$ solution is 0.000,02 per cent.

These results showed clearly that compounds of aluminum, such as the chlorid, even when present in very minute proportions, are strong protoplasmic poisons and very toxic to growing plants.

III. MALLET'S EXPERIMENTS ON THE SOLUBILITY, IN GASTRIC CONTENTS, OF ALUMINUM COMPOUNDS CONTAINED IN BREAD MADE WITH ALUM BAKING-POWDER

Two years ago I was asked by Prof. J. W. Mallet to examine and discuss some results of Professor Mallet's investigation on the "solubility, in the stomach, of aluminum compounds contained in bread made with alum baking-powder." These results were summarized in the

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* From the Laboratory of Biological Chemistry of Columbia University, at the College of Physicians and Surgeons, New York.

1. This paper is purposely restricted to a discussion of the work of the author and his collaborators.

2. House and Gies: Am. Jour. Physiol., 1906, xv; Proc. Am. Physiolog. Soc., December, 1905, p. 19.

3. True and Gies: Bulletin of the Torrey Botanical Club, 1903, xxx, 390. Also Gies and Collaborators: Biochemical Researches 1903, 1 (reprint No. 37).

appended personal statement by Professor Mallet (dated Aug. 27, 1909):

EXPERIMENTS PERFORMED BY PROFESSOR MALLET

The baking-powder used was of the "Bob White" brand—a "straight alum" powder—and was purchased in the open market. After addition of water the reaction was slightly alkaline. The flour selected was of choice quality for family use, prepared by the roller process. Bread was made with

	Gm.
Flour[4]	550
Common salt	8
White sugar	5
Baking powder (2 heaping teaspoonfuls)	16
Water	231

Great care was taken to secure uniform mixture of the solid materials by repeated siftings before water was added, and the dough was very thoroughly kneaded. The quantity of water stated is that remaining in the baked bread as eaten, allowance being made for the carbon dioxid gas expelled. The bread was baked as a batch of rolls to a light yellowish-brown crust. The porosity was uniform and satisfactory. The bread was palatable, notwithstanding the omission of any shortening ingredient.

Three persons were selected as subjects for experiment, viz.: A.—J. N., white, male, aged 21. In normal health and condition. B.—L. B., white, male, aged 21. In normal health and condition. C.—W., Negro, male, aged 23. In normal health and condition. Each of these subjects, having eaten nothing since the previous evening, ate in the morning a portion of the specially prepared bread, taking with it a limited quantity of water, avoiding great dilution with the latter.

A took about 128 gm. of bread and 175 c.c. of water.
B took about 85 gm. of bread and 175 c.c. of water.
C took about 171 gm. of bread and 325 c.c. of water.

An hour after eating, the contents of the stomach were in each case withdrawn by means of a stomach-tube, the turbid liquid obtained measuring:

In the case of A.....156 c.c.
In the case of B.....182 c.c.
In the case of C.....197 c.c.

This turbid material was at once carefully filtered through muslin and then through paper, until a clear liquid was obtained. The filtration was slow, and the residue was lightly washed with a small quantity of water. The reaction of the liquid was in all three cases markedly acid.

The whole of the filtrate was in each case evaporated to dryness in a platinum dish over a water-bath, the dry residue carefully incinerated in the same dish, and the ash fused with sodium carbonate and a minute quantity of sodium nitrate, to destroy the last traces of organic matter. The fused residue was dissolved by nitric acid, the phosphoric acid radical removed by ammonium molybdate, and aluminum hydroxid precipitated by ammonia. The precipitate was again dissolved by nitric acid, again thrown down by ammonia, treated with pure sodium hydroxid to separate iron, once more precipiby ammonium chlorid, thoroughly washed, dried, ignited and weighed. All parts of the process involving the use of heat were carried out in platinum vessels. In this way there was recovered from the contents of the stomach:

In the case of A.....21 mg. of alumina (Al_2O_3)
In the case of B.....23 mg. of alumina (Al_2O_3)
In the case of C.....13 mg. of alumina (Al_2O_3)

In each case of alumina, after weighing, was fused with sodium carbonate, dissolved by hydrochloric acid, reprecipitated as hydroxid by ammonia, and fully identified by the use of all the chief tests for aluminum in its compounds.

Assuming the baking-powder to have been uniform in composition and to have been uniformly distributed in the bread, the three subjects had swallowed aluminum in the following amounts:

In the case of A.....107 mg. of Al_2O_3
In the case of B..... 71 mg. of Al_2O_3
In the case of C.....143 mg. of Al_2O_3

and hence of this there was recovered in solution from the portion of the stomach contents obtained:

In the case of A.....19.6 per cent.
In the case of B.....32.4 per cent.
In the case of C..... 9.1 per cent.

PROFESSOR MALLET'S CONCLUSIONS

The differences between these figures are not surprising in view of the unknown and variable quantities of gastric juice secreted in a given time, its variable degree of acidity, and the different proportions of diluting water. It will be seen that the smallest amount of aluminum—both absolute and in proportion to the amount swallowed—was recovered from the contents of the stomach of subject C, who ate most bread and took the largest absolute amount of water with it. It is to be borne in mind that not the whole, but only a part, of the contents of the stomach was in each case removed by the tube, and that hence the quantity of aluminum recovered in soluble form represents but a part of that which was actually dissolved.

The general result is plainly apparent, that a part, and no inconsiderable part, of the aluminum in the ingested bread made with alum baking powder was, under the action of the gastric juice, present in dissolved form in the stomach of each of the subjects of the experiments.

THE PRESENT WRITER'S OPINION OF PROFESSOR MALLET'S EXPERIMENTS AND OF THE SIGNIFICANCE OF THEIR RESULTS

In response to the request for an opinion regarding the possibly harmful effects of aluminum in the proportions (in gastric contents) that occurred in the experiments described above, I wrote in this connection to Professor Mallet as follows (Oct. 11, 1909):

The results given in your statement show clearly that well-baked bread, made with an alum baking-powder, contains aluminum in a form that will yield a surprisingly large proportion of a soluble aluminum compound or compounds to human gastric juice under normal conditions in the stomach. In one of your experiments, as much as 32.4 per cent. of the amount of aluminum introduced with the ingested bread was found in 182 c.c. of gastric contents removed "an hour after eating"—which volume was not, of course, the entire volume in the stomach at the time, to say nothing of prior natural intermittent removals of partly digested matter into the intestine. These facts suggest that in many instances more than one-third of the aluminum in the ingested portion of such bread may occur, at a time, in a *soluble* form in the digestive contents of the stomach. These data being before one—and your determination of them is conclusive assurance of their accuracy—what may be said regarding the "physiologic effects" of the aluminum that thus appears in the gastric juice in dissolved form?

I believe that aluminum, if present in the stomach, day after day, in dissolved form in such proportions would tend to modify unfavorably the gastric secretory and digestive processes. There would be repeated attacks on the mucous membrane, especially through the astringent and protein-precipitating properties of the dissolved aluminum. The associated presence of much protein material would tend to diminish such action, however, by causing the production of less toxic forms of *combined* aluminum.

I am satisfied that people with "poor digestions" would be influenced ultimately to their further disadvantage, as a rule, by meals usually containing aluminized bread. It is true that multitudes are able to withstand the deleterious influence of various poisonous substances, even for long periods, without exhibiting *distinguishable* detriment. Such seeming lack of direct harmful influence, however, is often insidiously mislead-

4. The flour used in these experiments was examined for aluminum and yielded in the ash the equivalent of less than 1 mg. of Al_2O_3 for the largest quantity of bread eaten by any of the subjects.

ing, as in the case of various auto-intoxications which, until lately, have unwisely been regarded indifferently as "normal" ones and, erroneously, as without permanent, harmful influences. Unless we know *positively* that a substance which is foreign to natural foods and not intended particularly for medicinal effects, can be introduced into the stomach, repeatedly in small amounts, without *possibly* causing harmful results in some cases, either immediately or in time, I believe it is in the public interest to urge "hands off" until such supportive evidence for the substance in question is convincingly produced.

I believe that aluminum, if present in the stomach day after day, in the soluble proportions you have found, would disturb the integrity of the secretory gastric cells, just as traces of soluble aluminum compounds strikingly prevent growth in plants by poisoning the cells. The fact that aluminum is normally contained in plants must not be considered apart from the very significant circumstances that the amount in which it occurs in any edible vegetable material is very minute; and practically all of that exists in forms which are there insoluble. The data in the footnote attached to your statement regarding the presence of the merest trace of aluminum in the flour you employed in your experiments, emphasize this point.

Your statement does not indicate the proportion, or the conditions, of the acid in the aluminized gastric contents which you examined. Your figures for the proportions of contained aluminum may be much greater in subsequent tests, if the acidity of the gastric contents you examine later happens to be higher, as might be the case.

In short, I believe such bread as you mention is likely to induce harmful digestive effects, especially if used throughout comparatively long periods, and particularly in people whose digestive processes are not vigorous or normally effective. I also feel that the public should be given the benefit of any possible doubt in this matter until it is shown, without question, that aluminized bread as commonly used cannot possibly be inimical to the health, not only of those who are robust and who apparently "can stand anything," but especially of those who are most susceptible to injury and disease. I am convinced, from a careful study of the literature on the subject, that the reasonable doubts on this score that relate to alum baking-powder have not been removed.

The correspondence with Professor Mallet also developed the fact that the aluminum in filtered gastric contents, in experiments like those conducted by Professor Mallet, is readily diffusible through parchment membranes, an observation suggesting, though not proving, that soluble aluminum compounds such as aluminum chlorid are diffusible through membranes in living organisms.

At Professor Mallet's suggestion I lately directed some experiments on the passage of aluminum from the alimentary tract into the blood. A recent paper by Prof. Matthew Steel[5] gives the results of this particular study and also presents additional data which show that aluminum passes from the blood into the feces. In the appended review of our procedure and results, free use is made of Professor Steel's paper.

IV. STEEL'S EXPERIMENTS ON THE ABSORPTION AND EXCRETION OF ALUMINUM

Professor Steel's investigation consisted of fifteen experiments on dogs. Eleven of the experiments pertained to the passage of aluminum into the blood from aluminized food, and four experiments related directly to the passage of aluminum from the blood into the feces. In Experiments 1 to 9 (described below) alum was administered in powdered form in balls of hashed meat. In Experiments 10 and 11 biscuits baked with alum baking-powder were fed. In Experiments 12 to 15, inclusive, aluminum chlorid in physiologic saline solution was injected intravenously. All the experiments were performed on full-grown, normal, healthy dogs. The animals, while under observation, were confined in cages of the kind now in constant use in this laboratory.[6] The daily food of the animals with two exceptions (Experiments 10 and 11) consisted of a mixture of hashed lean beef, lard, cracker meal, bone-ash, and water. The raw beef was taken from large supplies preserved in a frozen condition.[7]

In Experiments 10 and 11 biscuits prepared with alum baking-powder were substituted for the cracker meal. The biscuits, which were made by the process that Professor Mallet employed in his experiments, were baked with special thoroughness. The ingredients were mixed in the following proportions:[8]

	gm.
Flour	550
Sodium chlorid	8
Sucrose	5
"Bob White" baking-powder	16
Water .... Enough to make a biscuit dough	

EXPERIMENTS SHOWING THAT ALUMINUM PASSES FROM THE ALIMENTARY TRACT INTO THE BLOOD

Eleven experiments were performed to determine whether aluminum passes from aluminized food into the blood. In Experiments 1 to 9, inclusive, the aluminum was added to the food as powdered alum in balls of hashed beef.

Experiment 1.—The weight of the dog was about 24.5 kilos. He was given 0.9047 gm. of alum in order to administer aluminum equivalent to that in 100 mg. of Al_2O_3.[9] Three hours after feeding, 800 gm. of the dog's blood were taken. This quantity of blood contained the aluminum in 1.3 mg. of Al_2O_3.[10] (The dog was used in Experiments 2 and 3.)[11]

Experiment 2.—Eight days later (Experiment 1), when the dog used in Experiment 1 had practically regained his normal weight, he was given 1.8094 gm. of alum (2×0.9047 gm.). Five hours after feeding, 726 gm. of his blood were removed. This quantity of blood contained the aluminum in 1.9 mg. of Al_2O_3. (The dog was used in Experiment 3.)

Experiment 3.—Although the dog used in Experiments 1 and 2 had regained his normal weight within five days, no alum was given until eleven days after the termination of Experiment 2. At this time the dog received 3.6188 gm. of alum (4 × 0.9047 gm.). Seven hours after feeding, 857 gm. of his blood were obtained. This quantity of blood contained the aluminum in 5.9 mg. of Al_2O_3.

Experiment 4.—A dog weighing 13.4 kilos was given 1.8094 gm. of alum (2 by 0.9047 gm.). Six and one-half hours later,

5. Steel: Am. Jour. Physiol., 1911, xxviii, 94.

6. Gies: Am. Jour. Physiol., 1905, xv, 403.

7. Gies: Am. Jour. Physiol., 1901, v, 235; Proc. Soc. Exper. Biol. and Med., 1908, vi, 27.

8. The flour contained the merest trace of aluminum. The "Bob White" brand of baking-powder is a "straight alum" powder. Our samples were purchased in the open market.

9. This quantity of Al_2O_3 was selected empirically. It is less than the equivalent amount of aluminum which is often ingested by one person in the aluminized bread of an ordinary meal.

10. Oxidation of the blood (Experiments 1-2) was effected by running the blood from a saphenous artery through a rubber tube directly into a tared Kjeldahl flask and weighing to determine the amount of available blood, then adding concentrated nitric acid solution and heating, slowly at first, and finally boiling, until the solution was clear. A moderate excess of nitric acid solution was then added and the liquid boiled down to a small volume. The fluid was then treated with a fairly large volume of concentrated sulphuric acid solution for the expulsion of the nitric acid and to complete the oxidation of the residual organic matter. When necessary, small quantities of ammonium nitrate were added from time to time to facilitate the oxidation process. The sulphuric acid mixture was boiled for at least two hours after it became colorless, in order completely to eliminate NO_3. The residue was then dissolved in water and made up to volume, and the iron and aluminum determined by the Mixer-Dubois modification of the Zimmerman-Rheinhardt method: Jour. Am. Chem. Soc., 1895, xvii, 405. With this method it was found that the blood of dogs is normally free from aluminum.

11. In order to avoid any disturbing effects of general anesthesia a local anesthetic was employed in all the surgical operations. Less than 1 c.c. of a 2 per cent. solution of cocain was used at any one operation. In no case did the dog exhibit any sign of pain.

540 gm. of his blood were withdrawn. This quantity of blood contained the aluminum in 2.6 mg. of Al_2O_3.

Experiment 5.—A dog weighing 19 kilos was given 3.6188 gm. of alum (4 × 0.9047 gm.). Seven hours later, 787 gm. of his blood were subjected to analysis. This quantity of blood contained the aluminum in 10.9 mg. of Al_2O_3.

Experiment 6.—A dog weighing 17 kilos was given 2.7141 gm. of alum (3 × 0.9047 gm.). Five and three-quarters hours later, 736 gm. of his blood were analyzed. This quantity of blood contained the aluminum in 6.7 mg. of Al_2O_3.

Experiment 7.—A dog weighing 17.6 kilos was given 3.6188 gm. of alum (4 × 0.9047 gm.). Six and one-half hours later, 996 gm. of his blood were secured. This quantity of blood concontained the aluminum in 3 mg. of Al_2O_3.

Experiment 8.—A dog weighing 13.4 kilos was given 0.9047 gm. of alum *daily for eight days*. On the eighth day, six hours after the last dosage, the animal was bled to death. One thousand and fifty-eight (1,058) gm. of his blood were available. This quantity of blood contained the aluminum in 3 mg. of Al_2O_3.

Experiment 9.—A dog weighing 10 kilos was given 0.9047 gm. of alum *daily for eight days*. On the eighth day, five hours after the last dosage, the animal was bled to death and 996 gm. of his blood were secured. This quantity of blood contained the aluminum in 4.3 mg. of Al_2O_3.

In Experiments 10 and 11 aluminum was administered in biscuits baked with alum baking-powder. In these experiments (10 and 11) the dogs ingested portions of the same supplies of meat, lard and bone-ash that were available for the previous experiments, but, instead of cracker meal, they were given alum baking-powder biscuits, which were made of the ingredients that are specified in the summary in the first part of this section of the paper. The biscuits were very thoroughly baked.

Experiment 10.—A dog weighing 13 kilos was given daily, *for ten days*, about 5 gm. of alum baking powder (in baked biscuits). On the tenth day he was bled to death and 650 gm. of his blood were oxidized. This quantity of blood contained the aluminum in 2.6 mg. of Al_2O_3.

Experiment 11.—A dog weighing 11.1 kilos was given daily, *for nine days*, about 4 gm. of alum baking-powder (in baked biscuits). On the ninth day he was bled to death and 572 gm. of his blood were analyzed. This quantity of blood contained the aluminum in 1.5 mg. of Al_2O_3.

TABLE 2.—DATA SHOWING THE PASSAGE OF ALUMINUM FROM THE ALIMENTARY TRACT INTO THE BLOOD

Exp. Number	Weight of Dog (kilos)	Dose of Alum (gm.)	Time Between Dosage and Bleeding (hr.)	Weight of Blood Taken (gm.)	Total Weight of $FePO_4$ + $AlPO_4$ (gm.)	Weight of $AlPO_4$ (mg.)	Weight of Al_2O_3 from the Total Amt. of Blood Taken* (mg.)
1	24.5	0.9047	3	800	0.9644	3.2	1.3
2	24.4	1.8094	5	726	0.8820	4.5	1.9
3	24.5	3.6188	7	857	0.9450	14.1	5.9
4	13.4	1.8094	6½	540	0.7650	6.0	2.6
5	19.0	3.6188	7	787	1.0170	26.0	10.9
6	17.0	2.7141	5¾	736	1.3980	15.0	6.7
7	17.6	3.6188	6½	738	0.8960	7.0	3.0
8	13.4	0.9047	6	1058	1.1330	7.1	3.0
9	10.0	0.9047	5	996	1.0285	10.5	4.3
10	13.0	†5	6	650	0.7854	6.2	2.6
11	11.1	†4	7	572	0.5136	3.6	1.5

* See the second paragraph after the description of Experiment 11.
† Alum baking-powder in biscuits.

The essential data of Experiments 1 to 11, inclusive, are summarized in Table 2. The results there tabulated make it evident that aluminum passes into the blood in considerable proportions from alum in the diet. They also show that aluminum does not tend to accumulate in the blood.

These analytic data apply, of course, to the blood only at the moment of its removal from the body. Under the conditions of the experiments, it is certain that aluminum passed into and from the blood in much larger *total* quantities than those indicated. In Experiments 1 to 7, inclusive, the quantities of available blood ranged from 2.9 per cent. to 4.3 per cent. of the body weight. From three to four times as much aluminum as the quantity shown in the table was therefore contained in the whole volume of blood of the corresponding animal at the moment of bleeding (Experiments 1 to 7).

The results of Experiments 10 and 11 show clearly that the aluminum in alum baking-powder is not rendered wholly insoluble in the bread-baking process. Amounts of aluminum equal to some of those recovered after the administration of plain alum in powdered form (Experiments 1 to 9, inclusive) were found in the blood of the dogs that received the alum baking-powder biscuits.[12]

EXPERIMENTS SHOWING THAT ALUMINUM PASSES FROM THE BLOOD INTO THE FECES

The results of the foregoing experiments suggest that aluminum was not only absorbed from the gastro-intestinal tract and distributed in the blood throughout the body, but also was eliminated fairly rapidly from the circulation. In considering the matter of its excretion from the body, we concluded to ascertain, first, whether aluminum passes into the feces after the parenteral introduction of aluminum chlorid.

The animals selected for four experiments in this connection were normal, vigorous dogs, weighing between 8 and 10 kilos. The daily diet was similar to that for the dogs in the first nine experiments. In each case the animal was kept on our standard diet for about ten days before feces were collected for analysis. Thereafter all the feces for the six days previous to the introduction of aluminum were carefully analyzed for aluminum.[13] *None was found in any instance in the feces passed prior to the corresponding injection.*

We selected aluminum chlorid as the salt for intravenous injection in these experiments, because it is probable that aluminum chlorid is produced from

TABLE 3.—DATA SHOWING THE PASSAGE OF ALUMINUM FROM THE BLOOD TO THE FECES[1]

Experiment Number	Weight of Dog (kilos)	Amount of Aluminum Injected (calculated as mg. of Al_2O_3)	Dry Weight of Feces Eliminated During the Three Days Following the Injection (gm.)	Amount of Aluminum Found in the Feces During the 3 Days Previous to the Injection	Amount of Aluminum Found in the Feces During the 3 Days Following the Injection (mg. of Al_2O_3)	Percentage of the Injected Aluminum that Was Recovered
12	10.0	9	67.5	None	1.0	11.11
13	9.4	18	64.0	None	1.1	6.11
14	8.2	36	47.5	None	1.9	5.27
15	9.2	82.8	56.0	None	4.6	5.55

1. A dilute solution of $AlCl_3$ in physiologic saline solution was injected into a saphenous vein.

aluminized food in the stomach. A dilute solution, containing the aluminum equivalent of 0.9 mg. of Al_2O_3 per c.c. of physiologic saline solution, was very slowly

12. The reader is again reminded of the fact that special care was taken to subject the biscuits to very thorough baking.

13. The feces (Experiments 12 to 15), prior to the precipitation of any aluminum contained in them, were incinerated in a platinum dish. The ash was dissolved in dilute hydrochloric acid solution. This solution was directly subjected to the analytic procedure described in Footnote 10.

injected into a saphenous vein.[14] That a portion of the injected aluminum passed from the blood into the feces under these conditions can be seen from the results of our four experiments, as summarized in Table 3.

V. GENERAL DISCUSSION

We found, in Dr. House's study of the effects of aluminum salts on germinating plants, that the aluminum ion is very destructive of protoplasm. Our results warrant the conclusion that aluminum is especially toxic to growing cells in general. That many plants contain traces of aluminum, and that some plants contain even larger proportions of that element, are well-known facts. That these proportions of aluminum occur in the living cells of plants, or that the aluminum exists in plants in soluble forms, remains to be shown, however. It is well known that the proportion of available aluminum in soluble form in fertile soils is very slight. Then, too, plants which happen to be exceptional in the matter of proportional content of aluminum are similar in that respect to animals which are unusual in their capacity to use advantageously such a poisonous element as copper. Thus the blood of the horseshoe crab contains a large proportion of copper in the form of a respiratory compound which is chemically and physiologically analogous to hemoglobin in the blood of the higher animals. No one would think of using this fact, however, as an argument in favor of the free introduction of copper sulphate into the human stomach, or its injection into the blood of a man, or its use in food. On the contrary, in spite of the fact that the blood of some animals contains copper, it is generally agreed that the administration of copper compounds to man and other mammals, even in minute quantities, induces poisonous effects. There is even less justification for the administration of substances containing aluminum.

We found in Professor Steel's experiments that when alum was administered in aluminum-free food to dogs, or when dogs ingested biscuits baked with alum baking-powder, aluminum in comparatively large amounts promptly passed into the blood. This result was obtained in each of eleven experiments. The daily diet in each of the first nine of these experiments was a full meal of hashed lean beef, cracker meal, lard and water, in quantities sufficient to maintain both constancy in weight and equilibrium in nitrogen metabolism. This diet contained bone-ash in a quantity sufficient to induce daily movements of comparatively dry, inoffensive fecal matter.[15] In the last two of these eleven experiments, biscuits made with alum baking-powder were substituted for the cracker-meal.

In spite of the presence, in the food, of these large proportions of protein and bone-ash, and of the tendencies of these materials to form insoluble products with alum, our data show that aluminum occurred in soluble form in the gastro-intestinal tract in each case of alum administration and was absorbed into the blood. It is especially important to note that this result was also obtained in the analogous experiments with the biscuits made with alum baking-powder. The biscuits had been more thoroughly baked than the bread which commonly appears on the market. The tendency of the baking process to transform the aluminum in the baking powder into an "insoluble modification" was carried to an extreme that is rarely equaled in every-day life. Nevertheless, absorption of aluminum occurred.[16]

Two objections might be raised against this conclusion regarding the absorption of aluminum from the gastro-intestinal tract into the blood. It might be assumed that our analytic method was inaccurate. Such an assumption is always in order in the consideration of any method, for none is perfect. Our preliminary work with the analytic method employed and the checks against error that were instituted, give us complete confidence, however, in the practical accuracy of the process. If slight and unavoidable errors occurred, we believe that, from the general nature of the method, they must have caused loss of aluminum and consequent diminution of the numerical result, rather than the reverse.

It might also be urged that our figures representing the amounts of aluminum which passed into the blood are too small to mean anything. It might be thought that the proportions are too minute for the causation of deleterious effects. It might even be suggested that such small proportions of aluminum are beneficial because of the possible "stimulating" action which traces of poisons frequently induce. But none of these assumptions could be shown to accord with the whole truth in the matter. The amount of aluminum in the blood at any moment, after the ingestion of aluminized food, is but a fraction of the quantity that may occur in the blood of the individual during a given hour or a given day—larger quantities circulate throughout the body meanwhile, under such conditions. Excretion seems to occur continuously in cases of this kind. If the aluminum which is thus carried into the blood were of any value to the organism it is improbable that the absorption of a minute proportion of aluminum would be promptly followed by the elimination of much of it. The prompt excretion of aluminum under such circumstances implies a decided physiologic repugnance.

We found, further, that absorbed aluminum circulated freely, but, as it did not show any pronounced tendency to accumulate in the blood, it is obvious that its full effects must have been registered outside of the circulation. The organism "tolerates" a great amount of injury, but it has not been shown that the development of tolerance for aluminum is either a common achievement or a desirable attainment.

It should not be forgotten that the influence of a given substance must be considered, in its practical aspects, from the standpoints of actual conditions attending its introduction into an organism. What are its effects on individuals, for example, who are temporarily ill or permanently diseased? Again, what effects are registered in a perfectly healthy individual, who takes a small quantity of the substance under consideration with similarly small quantities of equally toxic or even more noxious materials? What, for instance, may be said of the effect of aluminum from bread made with an alum baking-powder, when the bread is eaten with butter colored by a "coal-tar" dye, with jam sweetened by saccharin, with soup made from "stock" preserved by sodium salicylate and salicylic acid, with peas greened by copper sulphate, with vegetables kept from spoiling by sodium benzoate and benzoic acid, in one case, by borax and boric acid in another, to say nothing of other deleterious substances such as formaldehyd, sulphurous acid, sodium sulphite, "ether flavors," and the like, in various portions of an ordinary

14. The wound healed promptly in each case.

15. This diet, with its contained bone-ash, has been given daily to dogs in this laboratory for nearly ten years with perfectly satisfactory results. Published reference has frequently been made to the physiologic advantages of this diet and to the utility of the bone-ash given with it.

16. This observation accords fully with Professor Mallet's findings on the solubility of aluminum from aluminized bread in the stomach, as described on a preceding page.

meal as it may happen to be served. Even if it may be reasonably urged that the effects of any one of these "foreign" substances "in the quantities eaten" are negligible, who can say that their collective action after such a meal is of no physiologic consequence? We frequently hear its said with assurance that "people go on eating all these things without ever knowing it, and yet where is the case of damage done by any of these products?" But may it not be asked in turn: Are not many cases of illness probably due to the effects of such substances in food quite unknown to those who ascribe the sickness in any instance to a different cause? It is easy to understand that relatively very slight absorption of aluminum, day after day, may ultimately (as in chronic auto-intoxications) develop biochemical incoordinations leading to perverted function, defective structure, decreased resistance to disease, or other undesirable modifications of one or more qualities or parts of the body. How many people have been obviously injured by saccharin, for example? Perhaps millions have eaten it without noting any hurtful result. Nevertheless, saccharin has recently been officially declared a dangerous sweetening agent because it does exert injurious influences, and its use as a sweetener will soon be prohibited by law. Yet, if this decision had depended on authentic reports of cases of sickness arising from the ordinary use of saccharin as a sweetening substance, its prohibition would probably never have been announced! So it is with aluminum. Alum baking-powder may be injuring thousands without affording any obvious sign of injury. While doubt remains, its use should be avoided.

Professor Steel found that, when aluminum chlorid was administered intravenously in very small doses, from 5.55 per cent. to 11.11 per cent. of the aluminum passed from the blood into the feces during the three days immediately after the injection. Whether this fecal aluminum passed directly through the walls of the intestine or was excreted by the liver, or whether both channels (or others) were followed, has not yet been ascertained. The possibility that the fecal excretion of aluminum takes place by way of the bile is now under direct investigation in this laboratory.

That absorbed aluminum may be distributed to all of the tissues, and that such aluminum may accumulate there, to some extent, is a probability which has been considered but which has not yet been adequately investigated. We have already inaugurated a study of this particular problem and hope to continue the investigation until the essential facts regarding the distribution of aluminum and its possible accumulation in parts of the organism can be definitely and clearly established. We have not yet studied the quantitative excretion of aluminum in the urine.

We have supposed that when aluminum enters the blood it combines there, in part at least, with protein. We have lately prepared various aluminum-protein products. Their qualities promise to reveal the combination tendencies of aluminum when it is absorbed into the blood and carried to the tissues.

Discussion of the toxic symptoms induced in animals by aluminum will be reserved for a future consideration.

I believe the foregoing observations justify the general conclusion that, unless it can be shown definitely, and beyond a reasonable doubt, that aluminized foods are harmless, the use in food of such aluminum carriers as alum baking-powders should be prohibited by law in the interest of conservation of the best of our natural resources—the public health.

437 West Fifty-Ninth Street.

A NEW OPERATION FOR URETERAL ANASTOMOSIS

A PRELIMINARY NOTE: ANASTOMOSING THE PROXIMAL END OF A DIVIDED URETER INTO THE SIDE OF THE URETER OF THE OPPOSITE SIDE *

JOHN J. GILBRIDE, A.M., M.D.
PHILADELPHIA

I am carrying out some experimental work on an operation for anastomosing the proximal end of a divided ureter of one side with the side of the ureter of the opposite side, with the idea of saving if possible a sound kidney in individuals in whom the lower end of the ureter is badly injured or diseased as in the following conditions; namely, when the lower end of the ureter is destroyed in operations for stricture of the ureter, or in the removal or dislodgement of an impacted ureteral calculus (especially when there is a large amount of inflammatory exudate so that the ureter is apt to be too badly injured to be repaired); when the ureter is involved in disease of the pelvic structures, or otherwise injured during operations performed in the pelvis, when the continuity of the ureter cannot be restored or implanted into the bladder; and when necessary for the correction of certain urinary fistulas involving the ureter. Implanting the ureter into the intestine is unsatisfactory and the formation of a urinary fistula by stitching the ureter to the skin is undesirable unless it is absolutely necessary.

I performed this operation for the first time on a colored male cadaver in the dissecting room of the Medico-Chirurgical College, in the following manner:

The abdominal cavity was open in the median line and the ureters were exposed by making longitudinal incisions, about one inch in length, in the parietal peritoneum over each ureter as it crosses the brim of the pelvis. The right ureter was drawn up and cut at a point about two inches from the bladder. The distal end was tied with silk thread. A pair of closed hemostatic forceps was passed through the incision in the parietal peritoneum over the left ureter and gently pushed across in front of the sacrum, loosening the parietal peritoneum and pushing it forward until the point of the instrument emerged through the incision made over the right ureter. (The parietal peritoneum can be elevated even more easily by using one's fingers.) The proximal end of the right ureter was then grasped with the forceps (or one may do so with the fingers), and drawn across in front of the sacrum and behind the parietal peritoneum to be anastomosed to the side of the left uterer. The ureteral anastomosis was then completed according to the method of Van Hook, except, of course, it was an end-to-side and not an end-to-end anastomosis. The anastomosis was made by grasping the sides of the left ureter with small dissecting forceps; the walls of the ureter were thus separated and a small longitudinal opening in the ureter was made with a pair of small, sharp-pointed scissors (or one may use a scalpel) without injuring the posterior wall of the ureter. A single thread of silk armed with two straight needles was used for the anchoring suture.

The needles were introduced from within the lumen of the proximal end of the divided ureter and brought out on its anterior wall about two or three millimeters from the cut end. Then the little slit in the wall of the other ureter was held apart with small dissecting forceps,

* Read before the Philadelphia County Medical Society, June 14, 1911. From the Laboratory of Experimental Surgery Medico-Chirurgical College.

thus opening its lumen, and the two threaded needles were passed into its lumen and brought out on its anterior wall two or three millimeters below the end of the incision. The end of the ureter was then drawn into the other ureter and the suture tied. A suture was passed through the edges of the incision in the ureter and the wall of the other ureter at the upper end of the incision and one or two interrupted stitches were also passed through the outer coats along the sides of both ureters, forming the anastomosis. The incisions in the parietal peritoneum covering the ureters were then closed, and the operation was completed by closing the abdominal wound. If the divided ureter is too short to form the anastomosis the intact ureter may be lifted from its bed and drawn over slightly to form the union.

After performing the operation on the cadaver, I performed it on a dead dog and followed this by operating on live dogs. In the dog the serous coat of the ureter is stripped up with the ureter and carried with it; the same thing can be done on the human ureter except the peritoneum is not so adherent, and then it would be necessary to close the rent in the peritoneum caused by lifting the ureter. In this case, it would be possible to carry the ureter across in front of the peritoneum covering the sacrum, and the peritoneum could then be closed about the anastomosis.

There is one thing that those who have worked on the ureter have found—at least, it is my experience—that the ureters tolerate very little traumatism as necrosis and perforations take place under seemingly slight injury to the serous coat.

As the practical application of this procedure depends not only on its immediate results but also on its ultimate effect—that is, on the kidneys, ureters, etc.—I shall give the result in a future communication.

This operation must be thoroughly tried on animals before considering its employment on human beings, as all experimental operations on the ureters have been disappointing. At the present time it seems to me that nephrectomy under such conditions as I have mentioned above is still probably the best procedure.

1934 Chestnut Street.

A CASE OF POTASSIUM CHLORATE POISONING

M. M. SCHEID, M.D.
ROSENDALE, WIS.

Damage by borrowed medicine is frequently met. The following is an instance:

May 21, 1911, I was called to see a twenty-day-old baby with the following history: The mother knew of a neighbor's having some medicine that I had prescribed about a year previous for sore mouth, borrowed it and used it in large amounts locally on the membrane of the baby's mouth, and internally. She said that the child became irritable and began to vomit. Gradually the skin became blue in color and the stain of urine and fecal matter on the napkins became black. When I first saw the child it was cyanotic, very irritable and apparently had abdominal pain. The skin over the entire body was a deep yellow black. The conjunctivæ were yellow and the eyes had lost their luster. There was vomiting and the napkins were stained almost black. No urine for laboratory examination could be obtained. The pulse was 190. The child's condition on the second day was much worse. The pulse was 208 and temperature 99.5. The respiration was short and jerky. To Dr. Whyte, of Watertown, Wis., who was in town and who kindly consented to see the case, and to me, it seemed as if the child would surely die. The mother was very faithful in carrying out directions for elimination and on the third day the pulse fell to 180 and the deep color of the skin showed signs of fading. May 26, the color had markedly diminished and the urine began to clear. The child, however, vomited occasionally and developed a diarrhea which improved after the administration of a dose of castor oil and the withholding of all food for twelve hours. The pulse was then 140, temperature, 99. June 22, the child was back again in normal condition.

From the clinical findings, from the condition of the urine and feces, and from the history of giving potassium chlorate, the case appears to have been one of poisoning. The treatment was purely eliminative. The child was sponged frequently, given plain boiled water by mouth and rectum, put in bed near an open window and kept absolutely quiet. The second day a dose of atropin sulphate, 1/3000 grain, was given every two hours, because of its recent recommendation in collapsed condition of infants. Whether or not it did any good, I cannot say. The drug would seem contra-indicated because of the increasing pulse-rate and checking secretion. Had I had an infant stomach-tube, I should have washed out the stomach. It is possible that the reason the condition became worse on the second day was that the stomach had not been completely emptied and the cathartics failed to do what lavage could do. The child made a perfect recovery, however. This report, which, I think, illustrates the reckless use of drugs among the laity, may be of service to some one.

RUPTURE OF LEFT RECTUS MUSCLE

M. A. STERN, M.D.
SOUTH ST. PAUL, MINN.

History.—About 1 p. m., July 16, J. C., an intelligent Austrian, aged 40, was pushing a heavily loaded truck from the platform of an elevator. The elevator platform was several inches above the floor so that when he pushed the truck on to the floor, it rebounded and struck him in the abdomen. Pain and distress were marked at the time, but passed off and the patient worked the rest of the afternoon. On the morning of July 17, he reported at the office complaining of an intense pain over the site of the injury. He walked in a stooped position which seemed to ease the abdominal distress.

Examination.—The patient was well muscled and nourished. Examination indicated a moderate degree of arteriosclerosis; the pulse was 110, but of good volume and tension; temperature was 99.1. The abdomen was exquisitely tender over a spot about 2 inches square, ½ inch below and 1 inch to the left of the umbilicus; there was rigidity and a noticeable swelling at this point, and tenderness on both deep and superficial pressure.

The patient was sent to the hospital and an ice-bag applied, but by July 18 pain had increased, rigidity and tenderness had become more localized and swelling had increased. Notwithstanding a good bowel movement, an exploratory laparotomy was decided on. There was no scratch, abrasion or ecchymosis of the skin of the abdomen at any time.

Operation.—July 18, an incision was made over the swelling; as soon as the rectus muscle was reached, a considerable quantity of dark blood and recent clots welled up into the incision. The hematoma was wiped out, and the left rectus was found to be torn completely across and badly lacerated. The sheath of the muscle was intact, the peritoneum was opened, but no injury to any hollow viscus found. The muscle was sewed to the sheath and the bleeding points ligated. The abdomen was closed with drainage. There was a good recovery.

As before stated the man was pushing a heavy load and both recti were contracted to their full extent, this probably accounts for the rupture of this muscle without other internal injuries.

Therapeutics

EPIDEMIC CEREBROSPINAL MENINGITIS: SPOTTED FEVER

The present generation of medical practitioners has witnessed no greater revolution in the therapeutic measures employed in a disease, nor in the results following the use of such new treatment, than has taken place during the last five years in the case of epidemic cerebrospinal meningitis. This disease, also known as spotted fever, and more concisely designated as epidemic meningitis, is an infectious disease characterized by a purulent inflammation of the inner covering of the brain and spinal cord. It has been known to medical observers for about a century, and has been recognized as a terrible affliction, and dreaded by the profession and the laity alike.

Weichselbaum, in 1887, described an organism which he found in this disease, to which the name *Diplococcus intercellularis meningitidis* was given, and which has also been known by the shorter designation of meningococcus. Jäger, in 1895, demonstrated that this organism is the cause of epidemic cerebrospinal meningitis. It is found in the cerebrospinal fluid in well-developed cases of the disease. It is an organism of rather delicate vitality, and its activity seems to be impaired by fresh air and sunshine. It is sometimes found in the crypts of the tonsils and pharynx of persons who do not have an acute attack of the disease. It is probably transmitted through the secretions from the nose and mouth, and is received in this way by persons who subsequently become ill with the disease.

It has been found rather difficult to demonstrate the directly contagious nature of the disease. It was for many years the custom to admit patients with the disease to the wards of general hospitals, and for a long time it was believed that new cases did not arise from cases so present in the wards. Later, more careful observation has seemed to show that occasional cases do arise in wards from direct transmission, so that at the present time it is customary not to admit patients with this disease to the general wards of the hospitals, but to send them to hospitals designed especially for contagious and infectious diseases.

Approximately 15 per cent. of the patients with this disease are children under 2 years of age (and about 60 per cent. are children between the ages of 2 and 15.

Predisposing causes to this disease seem to be unhygienic surroundings and "crowd poisoning." In other words, it seems most likely to occur in epidemic form in cold weather and among children who are living in crowded apartments where there is but little sunlight, and where the windows are kept closed to keep the apartments warm. While it sometimes seems that a debilitated state of the system predisposes to this disease, it is also true that during epidemics some robust and apparently very well children acquire the disease.

An epidemic does not seem to spread out or develop from a single focus, but, like influenza, may attack people in different parts of a region at the same time.

Not infrequently the infection has been found to start from the pharyngeal tonsil, and thus enter the cranium through the sphenoid bone, and then along the vessels through the sphenoidal foramina into the base of the brain and sella turcica. Some investigations have seemed to show that the infection traveled along the lymph-channels rather than the blood-channels, and these investigations did not show that the infection went through the cribriform plate of the ethmoid.

In an acute attack of the disease the organs most affected are the meninges of the brain and spinal cord. The pia-arachnoid membrane is most affected, and it may show all grades of inflammation, but there is almost always more or less purulent exudate. The pus varies greatly in amount, and some parts of this membrane may be more affected than other parts. The region where there is the greatest amount of inflammation and pressure is indicated by peripheral nerve signs. As soon as there is exudate enough to cause pressure, the pressure alone accounts for many of the symptoms. The exudate does not, as a rule, penetrate into the brain or spinal cord tissue, but by pressure on the nerves at the base of the brain or spinal cord causes local paralysis.

At post-mortem examinations in this disease, the pia mater will be found covered with thin, yellowish pus, and there may be small petechial hemorrhages on the surface of the brain. The ventricles are also generally found filled with an exudate. The rapidity with which this condition can take place and cause death in some fulminating cases makes it one of the most serious diseases that we have to treat.

Although manifestations of this disease in its acute variety is limited to the cerebrospinal system, if the disease is protracted, there is hardly a part of the body that may not become affected. The lymph-glands and spleen generally do not enlarge, and metastatic abscesses do not occur, but pleurisy, pneumonia, endocarditis, pericarditis, nephritis, arthritis, neuritis, blindness and deafness can occur, to say nothing of later signs of cerebral degeneration.

The symptoms, as in all infectious disease, vary greatly in different cases. Sometimes the disease is so mild as not to confine the patient to bed. In other instances the patient is sick, but not seriously so, and soon recovers. These cases are distinguished as abortive cases, and no doubt they are frequently the direct cause of the inexplicable spread of the disease. The majority of cases, however, are very serious. The temperature is irregular; it may be high, if there is a condition of irritation or excitement of the nervous system, or may be low, if there is a condition of shock. The pulse is often very irregular; rapid if the patient is alert, and slow and gradually weakening, if the patient is in more or less stupor. Often the first symptoms are a slight congestion of the nose and throat and perhaps of the conjunctivæ, and often slight deafness. There may be some pains referred to the joints and lower extremities. There may be intense backache, shoulder pains and pains down the arms. There is always severe headache, with soon more or less stiffening of the muscles of the back of the neck. There is irritability, restlessness, often photophobia, and before the deafness perhaps a hypersensitiveness to aural impressions. In some instances the initial symptom may be a severe convulsion followed by unconsciousness. Such a case is of course a severe one. In some instances the nervous symptoms are preceded by a chill, followed by a quick rise in temperature.

The secondary symptoms depend entirely on where the greatest inflammation is located in the cerebrospinal axis and where the first pressure and the greatest pressure from exudates is exerted. Motor symptoms due to irritation of the roots of the motor nerves are early seen. These are, besides the rigidity of the muscles of the back of the neck and sometimes of the trunk, the so-called Kernig sign. This consists of an inability to

extend the leg in line with the thigh, the latter having been flexed at a right angle with the body, without causing pain and contraction both of the muscles of the leg and of the back.

Besides the above symptoms, disturbances of the stomach and intestines are frequent, and reflex, or projectile vomiting, due to cerebral irritation, is a common symptom. There is generally constipation due to retarded peristalsis; often retraction or flattening of the abdominal wall. Petechial spots occur in about 25 per cent. of these patients, and are more or less distributed over the body. This gives the name to the disease of spotted fever. There is frequently observed the so-called *tache cérébrale*, which consists of a red mark which persists for several minutes after the finger-nail has been rubbed across the skin; or it may occur on the face on the side on which the child may be lying. Delirium is a frequent and early symptom, and is generally succeeded by coma, if the disease does not abate or the pressure of the exudate on the brain is not removed. The pupils are generally at first contracted due to the irritation, then often become unequal, and later, if the disease progresses to exudate and pressure, are dilated and will not then react to light.

If the pressure on the floor of the fourth ventricle and on the medulla becomes increased, the pulse becomes slow and intermittent, and Cheyne-Stokes respiration occurs.

After recovery there is often a lingering stiffness of the muscles, stiffening of the joints, maybe neuritis, and maybe some deafness, and, as above stated, there may be actual deterioration.

The discovery of the *Diplococcus intercellularis* as a cause of this disease, and this germ being almost invariably found in the spinal fluid obtained from lumbar puncture, when the disease is present, makes a presumptive diagnosis require the backing of the bacteriologic fact. In hospitals lumbar puncture is an exceedingly simple matter, but in private practice a physician may not think it immediately advisable, even if he has the technical knowledge to puncture the spinal canal properly, to apply this test, even if some symptoms look meningeal. However, if the meningeal symptoms are positive, or if doubtful symptoms do not in a few hours clear up, lumbar diagnostic puncture should be done.

While the most characteristic symptoms, when they are present, of a cerebrospinal meningitis are the early occurrence of a convulsion, with fever, and rigidity of the muscles of the back and neck, accompanied by projectile vomiting, headache, and photophobia, a correct diagnosis of the particular germ that is causing the disease can be made only from a lumbar puncture.

At the beginning of an epidemic, or when sporadic cases are encountered, the possibility of the occurrence of this disease is frequently overlooked, and a diagnosis of some other form of disease may be made and even persisted in until the death certificate has been written. On the other hand, in the presence of an epidemic of the disease, it frequently happens that other diseases are mistakenly called epidemic meningitis, until irrefutable evidence proves that it is not.

The diseases with which epidemic meningitis are most likely to be confounded are lobar pneumonia, gastrointestinal intoxication, anterior poliomyelitis, otitis media, encephalitis, and typhoid fever. Besides these, other forms of meningitis which are not caused by the meningococcus must be taken into account in making the differential diagnosis. The most common of these diseases is tuberculous meningitis. Less common forms are the pneumococcus meningitis, streptococcus meningitis, and influenza meningitis.

Where the symptoms are less striking than in the group which is enumerated, the difficulty of diagnosis is often very great, and can be made only by a careful examination of the patient and by a gradual exclusion of other diseases. In every case, if possible, lumbar puncture should be done, and by examination of the fluid so obtained a definite diagnosis can generally be promptly made. The fluid is, as a rule, somewhat turbid, and the meningococcus can generally be found. Polymorphonuclear cells are also usually present.

Since the discovery, in the Rockefeller Laboratory by Flexner and Jobling, in 1908, of the antimeningitic serum, there seems to be but one way of treating the disease, viz., by the injection of this serum. The working rule is as follows: When the presence of this disease is suspected, a lumbar puncture should at once be made. If the fluid obtained is turbid, the serum should at once be administered. This is usually done with a syringe and through the same needle through which the cerebrospinal fluid has been obtained. It is customary to inject an amount not larger than has been withdrawn. This is usually about 30 c.c. While some prefer to inject with a syringe, others prefer to administer it through a glass funnel connected with the needle, believing that in this way they are less likely to produce injurious pressure on the central nervous system, which has sometimes been observed. These injections are generally repeated daily until four injections have been made, unless the patient is obviously convalescent before the later injections are due. If the patient grows worse after the first injection, a second may be given after twelve hours instead of waiting twenty-four. If the first injection does not show positive benefit, a larger amount, 45 c.c., may be given at the second injection. After the four injections it is customary to wait for two or three days, and, if the symptoms are still serious, to give another series of injections.

Previous to the introduction of this serum the mortality from the disease seems to have been practically about 75 per cent., although various observers, basing their conclusions on a limited number of cases, have represented the mortality to be less than this. Under the use of the serum, the mortality, taking a large number of cases together, has been reduced to about 25 per cent. Comparing small groups of cases, it is found that the earlier the injections are commenced, the less the mortality. The results obtained in children under 2 years of age are not so good as those obtained in older children, from 2 to 15 years of age. However, this representation of the improved statistics of mortality does not give a complete picture of the advantages to be obtained from the serum treatment. While these statistics indicate a very greatly increased benefit as regards the prevention of death, they do not show, what observers constantly report, the very great improvement in the results obtained by treatment, in that fewer patients become chronic invalids from hydrocephalus, from deterioration of mental power, and from deterioration of the general health. Under the old forms of treatment the condition of many who did not die was so bad that it was frequently said that the patient who died was more fortunate than the one who lived. The blindness, the deafness, the localized paralysis, the impaired mentality which were commonly seen in patients who recovered under old forms of treatment, are rarely seen after recovery from the serum treatment. Th duration of the disease also is greatly lessened by this treatment.

Under old forms of treatment cases frequently persisted for weeks or months. Now such cases are rare.

Besides the specific treatment, the child's throat should be sprayed, or he should gargle with an antiseptic such as hydrogen peroxid solution in dilution of 1 part to 5 of warm water. The nostrils should be sprayed and cleansed with a warm, weak alkaline solution such as a diluted liquor antisepticus alkalinus. The eyes, if there is conjunctivitis, should be bathed with boric acid solutions. Painful joints should be wrapped up in cotton, and the child's body and limbs should be placed in the position that causes the least pain and is found the most comfortable.

A calomel purge should be given, followed perhaps by a gentle saline. If there is vomiting or entire loss of appetite, food should not be urged for the first two or three days, as the child is better without it. Plenty of water should be given him. If vomiting persists and nausea is severe, and especially if there is severe pain, morphin should be given to the point of relieving these symptoms. The amount and frequency depends on the age of the child and the intensity of the pain. It should be remembered that there is no more excuse for allowing a child to suffer pain than there would be for trying to compel an adult to suffer pain. The morphin should be administered hypodermatically. If the pain is not severe, bromids or chloral will cause much-needed sleep, muscle relaxation, and nerve rest, all of which three factors are exceedingly necessary in any meningitis.

After the first day or two, the simplest nutriment, in small amounts should be given, at three-hour intervals. The best nutriment for this disease is milk, oatmeal gruel, egg albumin, and later on, meat juice.

The medicinal treatment that will aid in relieving the inflammation caused by the disease while the antitoxin is combating the specific germ, is ergot, administered hypodermatically. This drug quiets cerebral excitement and delirium, contracts the blood-vessels, especially of the central nervous system, and can be contra-indicated only when the heart is excessively active and the blood-pressure high. If such contra-indication was present, the symptoms would be relieved by nitroglycerin, or better, by blood-letting. Such a contra-indication, however, is rarely present, and the ergot should be given intramuscularly into the deltoid, or into the calves of the legs if many injections must be made. The amount advisable is a hypodermic syringeful of a good aseptic ergot; this dose for an adult. A child of ten should receive half this dose, 1 c.c. (15 minims), and a child five years old one-fourth of this dose (7½ minims); or each a proportionate part of a more concentrated solution of ergot as occurs in an aseptic ampule. This dose should be repeated in three hours, if there seems to be no action from it, and then after that once in six hours until there is a marked improvement of the symptoms. The ergot not only acts satisfactorily on the nervous system in relieving congestion and quieting the patient, but also increases and prolongs the action of any dose of morphin which it is necessary to give. In other words, less morphin need be given for severe pain in meningitis if ergot is given coincidently. If the injection of ergot causes temporary local pain and swelling, an ordinary wet dressing of 1 part of alcohol to 3 or 4 parts of warm water bandaged over the part will soon cause relief. If the skin is properly cleaned and the needle and syringe aseptic, and the preparation of ergot a good one, there will never be an abscess.

Alcohol is never indicated; neither should any drug that would excite the brain or spinal cord be given, such as quinin, strychnin, caffein, etc.

A very useful local treatment is ice. The ice-cap to the head and the spinal ice-bag, if the child will allow it, is certainly good treatment. If the child will not allow these cold applications, or if the child is young and is easily depressed by an ice-cap on the head, or if the temperature is low, and especially if the patient is stupid, hot sponge baths are better than ice applications. The more the blood is brought to the surface of the body, the less will be the internal congestion.

Besides the lumbar puncture for diagnostic purposes and for the injection of the antitoxin, the relief of cerebral pressure from lumbar puncture should not be forgotten, and many a life has been saved, before the antitoxin was discovered, by one or more removals of this extra fluid allowing relief from dangerous pressure and coma. In other words, prolonged coma from pressure should not be allowed, if its removal by way of the spinal canal is possible. It is quite probable, however, at times when lumbar puncture is not satisfactory, if properly done, that a purulent plug has stopped the free exit of fluid from the brain to the spinal canal.

The general care of the patient is the same as for any serious illness. The sick-room should be a large, thoroughly ventilated room, quiet if possible, and not too dark. It is better properly to shade or even screen the patient's eyes and allow the sun to enter the room. No talking, no unnecessary noise, and no officiousness of nurses or parents should be allowed to occur. The feet should never be allowed to become cold. The bowels should be moved daily, after the first purging, in the easiest possible manner, perhaps with a glycerin suppository. An albuminuria may occur, but it requires no special treatment, except possibly the administration of more water to cause the urine to be less concentrated. Also, if albuminuria occurs, ice applications to the back should probably be stopped.

As soon as the patient begins to recover, the ergot is of course stopped, and an iodid seems advisable. It seems to be a clinical fact that small doses of iodid aid in the resorption of exudates. At any rate, they apparently work only for good. Sodium iodid is the salt that should be selected, and the dose should be small, not more than 0.10 gm. (2 grains) three times a day, for a child 5 years old. Large excessive doses of iodid are absolutely not indicated in any meningitis, unless it is syphilitic.

Convalescence calls for iron in small doses, and possibly for some bitter tonic. The patient should remain in bed at least a week after the cessation of all active symptoms. Later convalescence should be very slow, and the resumption of any work or duty postponed as long as possible. Any muscles or joints that are stiff should receive massage, and any paralyzed muscles should be given electricity soon, lest they atrophy. The early applications, however, should be mild, lest too much stimulation be given to the nervous centers. If there are later any adhesions in or around joints, chloroform should be administered and they should be forcibly broken up.

Derivation of the Word Epilepsy.—The word "epilepsy" is derived from the Greek. The original word in that language was *epi lambeino*, meaning "to fall on." The original spelling more nearly approached the Greek word than does the present; instead of "epilepsy" it was "epilency." Trevisa, in 1398, writing of it as was the custom in the fourteenth century, spelled it epilency.—E. L. Hunt in *Medical Record*.

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[For other information see second page following reading matter]

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EPIDEMIC DROPSY

The so-called "epidemic dropsy" of India first attracted attention in 1877, when an outbreak took place in Calcutta. The succeeding few years witnessed a somewhat limited spread of the disease, but it apparently died out completely, and for about twenty years no fresh cases were reported. In 1901, however, cases clinically similar to the earlier ones were again observed in Calcutta, and in the following decade the disease attained such importance as to cause a government investigation. A report of the results obtained so far has been made recently by Greig,[1] and his findings are of considerable interest in view of the close similarity shown by this affection to beriberi.

Although some resemblance between epidemic dropsy and beriberi had long been noted, the infrequency of peripheral neuritis in the former led some observers to consider it an entirely distinct disease, and indeed its clinical aspects would seem to warrant such a conclusion. The most constant and characteristic symptom, as the name indicates, is the marked edema, for the most part confined to the skin and subcutaneous tissues, though the serous cavities also are invaded in severe cases. The occurrence of neuritis is noted by different observers, but all agree that it is by no means so important a feature of this disease as of beriberi. Greig calls attention to the fact that the clinical picture resembles very closely that of "ship beriberi," in which dropsy is the chief symptom, and neuritis of relatively secondary importance. Besides ship beriberi, the "prison dropsy" of the early part of the nineteenth century also bears marked resemblance to the Indian affection.

The investigation attacked the problem on several distinct sides. Although the non-infectivity of epidemic dropsy has been commonly acknowledged, this was made the subject of experimental work, with entirely negative results. Monkeys inoculated with freshly obtained blood gave no evidence of infection, and all attempts at isolation or observation of a peculiar organism in blood, urine, feces and dropsical effusion were unsuccessful. The distribution, too, of the epidemic gave evidence of its non-infectiousness. Practically all cases occurred among Bengalis, while the Marwaris (Hindus) living in the heart of the affected portions of the city remained almost wholly free from the disease. So, too, none of the better class of Europeans contracted it; and although in the hospitals no attempt at segregation was made, no dissemination to other patients occurred. A map giving the distribution of the fatal cases illustrates these features strikingly. Five of the more populous wards were either wholly free from fatal cases or almost so. Of these, two are inhabited mainly by Marwaris, and the remainder form the European quarter of Calcutta, while the heavily affected wards are those occupied by the Bengalis. Such a distinction might, of course, argue for racial susceptibility, were it not for the fact that Eurasians and poor Europeans at times contract the disease, and that a much more obvious and probable explanation is forthcoming.

In the dietary of the Bengalis rice is the predominant feature, supplemented to some extent by "ata"—finely sifted wheat flour. The Marwaris, on the other hand, live mainly on the pulse-grains, and the varied diet of the well-to-do European needs no comment. Since the advent of steam mills into India, the rice is for the most part polished, with the result that the phosphated elements of the grain are largely removed, as is also the case with the wheat flour used by the Bengalis. The pulses are comparatively rich in phosphatic elements, and a comparison between the typical dietary of a Marwari and a Bengali shows from three to four times the amount of phosphoric anhydrid in the former as in the latter.

Additional evidence in favor of dietary one-sidedness as a cause of the disease is afforded by the fact that those among the Bengalis who most frequently eat meat—the men, and children of both sexes—showed the fewest fatalities, while among the adult females, who eat meat seldom, they were much more numerous, and among the widows, who by religion are allowed no meat, deaths were most frequent. Animal experiments, too, showed the harmful effects of the Bengali dietary. The symptoms so produced, however, resemble those of beriberi more closely than epidemic dropsy, and are similar to those observed by previous investigators.

As to the epidemic character of the affection, Greig notes that the outbreaks occur at the time of high food prices, and cease coincidently with the fall in food values. The Bengali, he considers, lives normally in a state of "nutritional instability," and it needs only the extra strain of famine to overwhelm the balance and bring on acute disease.

Why, with causes apparently so similar, the disease should differ to such an extent from beriberi in symptomatology, is difficult to say. The fact may be of significance that Megaw,[2] in reporting cases of epidemic dropsy observed in Eurasians and poor Europeans, gives neuritis as a marked and constant symptom. So it is possible that race, or such minor dietetic difference as may result from it, may be a factor in this phase of the subject.

1. Scientific Memoirs by Officers of the Medical and Sanitary Department of the Gov. of India, 1911, p. 45.

2. Megaw: Indian Med. Gazette, 1910, xlv, 121.

PELLAGRA

Medical and press reports indicate the increasing prevalence of pellagra in different sections of the country. From Kentucky, Tennessee, North and South Carolina and Georgia come reports of increasing numbers of cases, some of them in localities where the disease had not previously been detected. These reports in all probability mark the annual recrudescence of the disease, and indicate that it is increasing from year to year, at least in some localities, and at a rate that demands serious consideration.

The evident increase in the number of cases, the high mortality attending the disease, and the lack of knowledge regarding its etiology and prevention, have created some feeling of alarm among the people of infected localities lest the disease might become widely epidemic. Judging from the experience of Italy, such an event is not impossible, since in that country the disease, soon after its appearance, became wide-spread and was attended by a high rate of mortality.

Accurate data regarding the prevalence of the disease in this country would at the present time be of the greatest value, but unfortunately these are not available since in only four states is pellagra required to be reported, and in only one of these are such reports required by law. Were these data available for the period since pellagra was first reported in the United States, it is probable that some idea would be gained as to the extension of the disease, and some light might also be thrown on the etiology and other phases of the problem.

No appreciable advances have been made in our knowledge of etiology and prevention in the recent past. The maize theory of the origin of the disease appears to be attracting less attention on the part of students of the disease. Sambon's hypothesis regarding the agency of flies of the genus *Simulium* appears as yet to have few supporters in this country, although Roberts[1] of Atlanta in a recent paper states that, from observations made in his section, conditions are very similar there to those described by Sambon in Italy where the disease prevails.

Alessandrini of Rome, on the other hand, attributes pellagra to a water-borne trematode of the genus *Filaria*.

Neither of these interesting views as to the parasitic origin of the disease has been confirmed. In fact, definite knowledge regarding the etiology of pellagra is utterly lacking, and the problem is one, therefore, that calls for urgent study and early solution.

Any true estimate of the significance of pellagra in the United States and its importance in future must be based largely on knowledge of its cause. The adoption of adequate preventive measures also depends on this factor.

The practically universal view of the non-contagiousness of pellagra renders quarantine inadvisable and unnecessary, and so far as known this measure has not been adopted by experienced authorities in their struggles against the disease. That health authorities and physicians generally are alive to the necessity of vigorous action, however, is shown by the interest taken by them in the subject. On the other hand, press reports and editorial comments indicate that the public is becoming much exercised over the situation. In an editorial in one of the southern papers,[2] the situation in North Carolina is referred to as alarming, and the medical profession is called on to devote more of its time and thought to the problems involved.

On the whole, the pellagra situation must be viewed with serious concern. The disease has been reported from more than thirty states, its area is extending, and its presence is a menace to the physical and mental integrity of large numbers of people. It therefore becomes one of the most, if not the most, important public health problem of the present, and as such, adequate provision should be made for its thorough investigation by federal and state health authorities.

1. Roberts, S. R.: THE JOURNAL A. M. A., June 10, 1911, p. 1713.

THE FRENCH MARRIAGE LAWS

As mentioned[1] by our Paris correspondent, Dr. Bertillon, *chef de travaux* of the municipal statistics of Paris, believes that the success of the present French marriage laws in promoting marriage shows how much laws can do to improve social customs and conditions, and thereby justifies legislation to promote increase in the birth-rate. An "administrative nihilist" of Herbert Spencer's school would perhaps have said that the results of the change in the law showed how much law could do to hamper social progress, since the improvement noted since 1907 seems to be due to the removal of burdensome formalities and restrictions with which the old law surrounded marriage. We are inclined, on the whole, to agree with Dr. Bertillon; but in the operation of the old law and the new we see, in addition, how much legislators can accomplish which they did not desire or foresee.

The French ideal of the family has, to most English-speaking people, an archeologic interest. We ourselves look on the family in the stricter sense as normally subject to growth and decay during a single generation. It comes into existence with a marriage; it has its fullest bloom while the children of that marriage are under their parents' care; it begins to undergo autumnal decadence as those children leave the home circle to found families of their own or to live their independent lives; and it comes to an end with the death of the parents or last remaining members of the home circle. In the ancient world, on the other hand, the family was immortal, or as nearly so as pious care could make it. The *patria potestas* never lapsed; the personality of the head of the family might change, but there always was

2. Danville (Va.) Bee, July 29, 1911.
1. THE JOURNAL, June 10, 1911, p. 1734.

an absolute head. Individual members of the household might die, but the family existed from generation to generation, held together under one central authority, united by common interests and common experiences.

Something of this antique permanence and solidarity it was the object of the French law to preserve in the French family. That law and custom both were instrumental in rendering family ties especially strong and permanent in France is the testimony of the French themselves and of foreign observers best qualified to judge. The marriage law contributed to this end by requiring candidates for marriage, whatever their age, to produce either the consent of their parents or proof of their death. It is true that the law did permit a son or daughter of marriageable age to dispense with the parents' consent after going through a process known as *sommation respectueuse;* but this was considered "respectful" only in name. Sooner than subject a parent to such an indignity, any right-feeling French son or daughter would submit to lifelong celibacy; in fact, the scandal of an irregular union seems to have been less dreaded in some instances than that of a *sommation respectueuse* to the parents of one or the other of the pair. Thus, while on the one hand the old law was indeed most powerful in preserving the old family ideals (within, apparently, a sphere constantly narrowed by the celibacy of those whom it prevented from marrying), on the other hand it lent a kind of desperate sanction to those irregular households which could not be called families. And thus perhaps is partially explained the apparent contradiction between the views of those who consider the French the embodiment of all the domestic virtues and those who find in them the antithesis of all domesticity.

The ancient ideal of the French family, beautiful as it is in many aspects, seems an anachronism, and attempts to preserve it longer by artificial means would have been as disastrous as the attempt to preserve the Macedonian phalanx in modern warfare. The simplification of the French marriage law has apparently come none too soon. The old form of the family, admirable as it was in its own day, could be preserved in this age only at the cost of growing demoralization.

Current Comment

"H. L. HARRIS" AND DR. WILEY

Our old friend, "H. L. Harris," is again "on the job." The newspaper editors over the country are receiving a stock letter signed "H. L. Harris," the tenor of which is to the effect that Dr. Wiley is not the efficient public servant most people think he is. After explaining what a negligible quantity Dr. Wiley is in the enforcement of the Food and Drugs Act, H. L. Harris delivers himself of this gem:

> "There is really no danger to health and life from partaking of adulterated condiments, etc., and the bulk of food which mankind consumes, such as bread, meat, potatoes, fresh vegetables, fresh fruits, nuts, etc., never has been adulterated. . . ."

Many newspapers know the true inwardness of Mr. Harris' communications. Some newspapers do not. As we have explained to our readers on several[1] occasions, "H. L. Harris" is one of the names under which the press agent for the borax trust—The Pacific Coast Borax Co., 100 Williams Street, New York City—writes. He sometimes uses the name "H. H. Langdon" and on the stationery which carries this name, calls himself a "Food Expert," and writes from a different address—427 West 22nd St. A few years back many medical journals printed H. L. Harris' articles on "Food Preservatives" under the belief that the author was a chemist instead of a publicity agent for the manufacturers of chemical food preservatives. After the reading pages of the medical journals were closed to this form of advertising, "H. L. Harris" sent letters to the newspapers on the subject of ptomain poisoning. Every case of alleged ptomain poisoning reported in the newspapers was collected by the borax concern and a stock letter signed "H. L. Harris" was immediately dispatched to the newspaper containing the report. These letters addressed "to the editor" first referred to the case of poisoning that had been recorded and then went on to tell how many thousands of cases of ptomain poisoning there had been since the pure food law had prohibited the use of borax in foods! Of course, it may be remarked, there is no particular reason why manufacturers of chemical preservatives should not send out articles to the daily press extolling their wares and criticizing the government officials who are trying to protect the public against those who would sell "medicated garbage" as foodstuffs. There is an excellent reason, however, why such articles should bear the name of the concern in whose interest they are written and not the variable cognomen of a "publicist." If the Pacific Coast Borax Co. should send out, on its own stationery, a letter signed by the company, stating: "We think Dr. Wiley a very undesirable man for the position of Chief of the Bureau of Chemistry, and we are fully convinced that borax is one of the most harmless and necessary ingredients of foodstuffs"—if, we say, such a letter were sent to newspapers there would be no grounds for criticism. But unfortunately, food dopers don't do business that way.

THE SANATORIUM AND THE DISPENSARY IN TUBERCULOSIS WORK

In a communication in this issue, Lawrason Brown calls attention to the need of accurate figures to prove or disprove the value of sanatorium and dispensary treatment of tuberculosis in its ultimate results. With the tremendous number of consumptives throughout the country it is impossible that all should be treated in sanatoriums, and besides, the solution of the economic problems involved are almost impossible by any state or community. Many private sanatoriums have been established for the treatment of tuberculosis, and a number of states have also established institutions of this sort. Besides these, lodges and philanthropic societies have also established sanatoriums for the purpose. On account of the

1. Editorially in The Journal A. M. A., Oct. 5, 1907; Feb. 13, 1909; Jan. 1, 1910; March 12, 1910. Some of this matter has been reprinted in leaflet form and will be sent on receipt of stamp.

large number of patients who need this sort of treatment none can remain long in these institutions, and whether they secure permanent benefit in a sufficient number of cases to justify our faith in the method, there are no accurate figures to show. Consumption is not cured in a few months. It requires three, four or even five years to effect a cure, whereas few consumptives stay in sanatoriums longer than six months. To overcome this difficulty, dispensaries have been established really more for the guidance and advice of patients and their families than to give individual treatment with the hope of cure. These dispensaries have no doubt done much good in the way of informing the patient as to the proper mode of life and habits for him to follow both for his own good and for the protection of those with whom he comes in contact. They have been the means, also, of aiding in the early diagnosis of many cases in patients who would otherwise have gone to physicians or to sanatoriums too late for much good to be done them in the way of care or treatment. But it is important to know accurately what the results of this treatment are. It is not the statistics covering the results of a few months of treatment, but the ultimate results, which constitute the actual test of the value of the treatment. Our correspondent, therefore, makes a plea for concerted work by sanatoriums and dispensaries in treating and following up these patients for a considerable period of time to ascertain the exact value of the treatment in saving the lives of consumptives. The sanatorium and dispensary idea has been gone into quite enthusiastically, and much money and energy are being spent by public and private charity for this form of treatment, without exact knowledge of its ultimate value.

COMPULSORY NOTIFICATION OF POLIOMYELITIS

At present, twenty-three states require that the health authorities be notified of cases of infantile paralysis. Other states will no doubt soon be in line. While the disease in epidemic form has prevailed in some countries of Europe for a longer time than in this country, and notification has been and is required, France seems to be one of those in which this has not been a requirement of the health authorities. The Paris Academy of Medicine, a little while ago, appointed a committee to consider the question of the propriety of obligatory notification of acute anterior poliomyelitis. On the recommendation of this committee, the academy advises that notification be made compulsory and that it should apply not only to typical cases, but also to doubtful ones, and furthermore, that it should be made at all times even in the absence of an epidemic. It is also recommended that children who have been in close relation with patients suffering from the disease be forbidden attendance at school for three weeks and that disinfection of the rooms at the termination of the disease be undertaken. Although the exact cause of this disease and the precise method of its transmission have not been determined, yet its infectious nature is so well established by clinical observation and experiment that compulsory notification is justified and should be required wherever the disease exists.

Medical News

CALIFORNIA

Medical Shop for Hospital.—Dr. Charles E. Zerfing, police surgeon of Los Angeles, is planning the establishment of a medical shop in the basement of the Receiving Hospital, in which will be made all the apparatus and equipment necessary to be used in all cases of emergency surgery. During the last year more than 21,000 patients were treated in the Receiving Hospital.

The Campaign Against Squirrels.—Dr. Friench Simpson, U. S. P. H. and M.-H. S., the federal expert in charge of the squirrel extermination campaign for the Visalia district, reports that in more than one hundred places under reinspection in the district, fifty were found to be absolutely free from squirrels. Assurance was given that while it will require several years of persistent effort squirrels can finally be exterminated.

Personal.—Dr. George W. Lasher, Los Angeles, is reported to be critically ill with cerebral hemorrhage at the home of Dr. William F. Perry, Los Angeles.——Dr. William W. Cross, Fresno, has been placed in charge of the branch of hygienic laboratory of the State Board of Health at Fresno.——Dr. Edwin B. McKillop of the Los Angeles County Hospital was struck by a car and painfully injured August 11.——Dr. Harold A. Miller and Dr. James A. Ellis have resigned as members of the Alameda Board of Health.——Dr. Henry C. Peterson, Stockton, has returned from abroad.——Dr. J. Perry Lewis, San Diego, fractured his leg and clavicle while cranking his automobile August 8.

COLORADO

Personal.—Dr. Maynard C. Harding, Ault, has been placed in charge of the Medical Mission of the Presbyterian Board at Soon-Chun, China.——Dr. William W. Arnold has been elected president of the Indiana Society of Colorado Springs. ——Dr. Willis G. Mudd has been appointed a police surgeon of Denver.

New State Board Members.—Dr. Arnold Stedman has been appointed a member of the State Board of Health to succeed Dr. Lewis E. Lemen, Denver; Dr. James R. Arneill, Denver, to succeed Dr. Josiah N. Hall, Denver, and Dr. Charles S. Morrison, Colorado City, to succeed Dr. Vivian Russell Pennock, Longmont.

State Medical Society Meeting.—The forty-first annual meeting of the Colorado State Medical Society, held in Steamboat Springs, August 15 to 17, resolutions were unanimously adopted endorsing the policy and the work of Dr. Harvey W. Wiley, Chief of the Bureau of Chemistry of the Department of Agriculture, Washington, D. C. Pueblo was selected as the next place of meeting and the following officers were elected: President, Dr. Walter A. Jayne, Denver; vice-presidents, Drs. William F. Singer, Pueblo, Horace C. Dodge, Steamboat Springs, Frank L. Dennis, Colorado Springs, and Benjamin B. Beahoar, Trinidad; secretary, Dr. Melville Black, Denver (reelected); treasurer, Dr. George W. Miehl, Denver; publicity committee, the secretary and Dr. Edward Jackson, Denver; councilors, Drs. Jacob C. Chipman, Sterling, and Arthur G. Taylor, Grand Junction, and delegate to the American Medical Association, Dr. Hubert Work, Pueblo.

ILLINOIS

Inspection of Dairies.—An inspection of all dairies in the state, containing four or more than four cows, is being made by Dr. Charles E. Crawford, Rockford, chief inspector of the State Board of Health and his assistants, and on its completion the board will have an original report on every dairy in the state and full information as to its sanitary condition.

Personal.—Dr. Joseph P. Pecival has retired from the superintendency of the Cook County institutions, Dunning; the institutions are at present under the care of Dr. Carl F. W. Eberlein, assistant physician.——Dr. Chauncey Sherrick has been made chairman and Dr. Edward L. Mitchell a member of the committee of arrangements for the dedication of the new Monmouth Hospital.

Money for Children's Home.—It is announced that James A. Patten, Evanston, has donated $10,000 toward the purchase of a building for the Frances Juvenile Home Association, Chicago. The object of the home is to care for children afflicted with contagious or infectious diseases, and is intended to supplement the work of Cook County Hospital. The capacity of the home at present is fifteen, but the plans contemplate the accommodation of two hundred patients.

Conference of Charities and Correction.—The sixteenth annual State Conference of Charities and Correction will be held in Urbana, Ill., October 21 to 24. The social hygiene section will hold a mass meeting in the University of Illinois auditorium Sunday afternoon, at which Drs. Woods Hutchinson, New York, and George F. Butler, Chicago, and Mrs. Albion Fellows Bacon of Indiana will speak. In the evening Dr. Charles Henderson of the University of Chicago will deliver the conference address. Monday afternoon the county farm superintendents will hold a meeting, presided over by Mr. William C. Graves, formerly secretary of the Illinois Board of Charities; at the superintendents' meeting in the evening Hon. L. Y. Sherman, president of the State Board of Administration, and Chief Justice Harry Olson of the Chicago Municipal Court will speak. The exhibits are expected to be on a large scale.

Chicago

Personal.—Dr. F. Curt Harnisch sailed for Europe August 22.——Dr. Alexander H. Ferguson, who has been seriously ill, is reported to be improving.——Dr. Charles F. Yerger was operated on recently and is reported to be doing well.——Dr. I. S. Trostler has taken charge of the *x*-ray laboratory of St. Joseph's Hospital.——Dr. B. Barker Beeson has returned from Europe.

New Sanitarium.—One hundred and sixty acres of land has been purchased west of Rose Hill Cemetery for the new municipal tuberculosis sanatorium, on the building and grounds of which about $1,000,000 will be expended. Harlow N. Higginbotham is chairman of the committee which has the matter in charge. The law under which the sanatorium is being erected empowers any municipality in the state to raise funds for such purposes, if the people by referendum vote so decide.

Industrial Care of Tuberculosis.—The Chicago Tuberculosis Institute in its August bulletin calls attention to the efforts made by the institute during the last two years to interest large employers of labor in the physical examination of their employees with a view to reducing the amount of tuberculosis. The firm of Sears, Roebuck & Co. erected a six-bed cottage at the Edward Sanitarium, Naperville, about two years ago, for the care of their employees suffering from tuberculosis. At the same time they put into practice a system of examination for all employees who showed traces of the disease.——Montgomery Ward & Company built a model six-bed open-air cottage at the same institution for the care of their employees.——The International Harvester Company has adopted the plan of Dr. Theodore B. Sachs for the systematic examination of employees in manufacturing establishments. The list of suspected tuberculosis patients will include employees in whom the diagnosis of tuberculosis has previously been made; employees whose poor general condition, in connection with other suspicious symptoms suggest the presence of the disease; employees with histories of protracted cough and expectoration and employees in whose families tuberculosis exists, or in which a death from the disease has recently occurred. Dr. James A. Britton and Miss M. J. Flannagan have been placed in charge of the special tuberculosis clinic to be inaugurated for the benefit of the employees of the company. The institute announces that it is now ready, through its advisory committee, to act in an advisory capacity with other large employers of labor to secure a more general adoption of the plan proposed.

INDIANA

Isolation Hospital for Military Post.—The War Department has ordered that an isolation hospital be established at Fort Benjamin Harrison, near Indianapolis.

Daily Bulletin.—The City Board of Health of Indianapolis has begun the publication of a *Daily Bulletin*, touching on health subjects; thus far bulletins on care of infants, sewage, garbage cans and house flies have been issued.

State Association Meeting.—The meeting of the Indiana State Medical Association will be held in Indianapolis, September 28 and 29, under the presidency of Dr. Frederick C. Heath, Indianapolis. United States Senator Robert L. Owen of Oklahoma, and Dr. William Welch of Johns Hopkins University, are announced as special speakers on the program.

Personal.—The farm home of Dr. Simon P. Scherer, near Noblesville, was destroyed by fire August 10, the loss amounting to about $9,000.——Dr. Hugh T. Montgomery, the oldest practitioner of South Bend, announces that he will soon retire.——Dr. Charles S. Goar, Indianapolis, who has been ill for several months as a result of an automobile accident, is reported to have recovered sufficiently so that he can take out-door exercise.

Health Officers' Authority Limited.—The Attorney-General of Indiana has given an opinion to the State Board of Health at the request of Dr. Eric A. Crull, health officer of Fort Wayne, that a health officer in the absence of an ordinance giving him such powers is not vested with the authority of a police officer. Dr. Crull desired to know whether he has the right to go out and make arrests for violation of the health laws or whether he should depend on the police.

Increase in Poliomyelitis.—Infantile paralysis increased markedly during the month of July, thirty-seven cases having been reported to the State Board of Health. The secretary of the board is in communication with the State Board of Health of Illinois in an endeavor to locate the origin of the epidemic. The focus last year was Fowler, Ind., from which several cases have been reported this year, with a spread of the disease in a southeasterly direction. Shelby County hogs have been afflicted with a similar disease and in Carroll County a cow had the same symptoms. The Rockefeller Institute has been asked to carry on experiments in regard to the transmission of the disease from animals to man.

Sanitary Survey.—The State Board of Health is conducting a sanitary survey of the region along the Ohio River on account of the increased amount of disease in that vicinity. Statistics show that the death-rate is higher along the Ohio River than in the interior of the state, due to the amount of typhoid fever. In the town of Rockport the highest death rate is shown, which is 34.4 deaths per 1,000. The death-rate from typhoid alone at Vevay is 134 per 100,000. The Ohio River from the Ohio line to Louisville shows fecal contamination. From the examination of samples of well water, shallow wells, taken from widely scattered communities throughout the state, Dr. Barnard, the State Food and Drug Commissioner, asserts that fully 50 per cent. of the shallow wells in Indiana are polluted and impure for drinking purposes. White River, which flows through Indianapolis, is polluted by sewage. The mayor is cooperating with the city board of health in an effort to establish a municipal sewage disposal plant.

MARYLAND

Personal.—Dr. Charles H. Diller, Detour, was operated on for disease of the intestine, August 23.——Dr. James M. Goodman, Frederick, had a man arrested for blocking the road and not allowing him to pass while on his way to see a patient. The man was held under $50 bonds to the grand jury.——Dr. James L. McCormick, Trappe, has been adjudged insane and committed to the Springfield State Hospital.

Baltimore

Herter Lectures.—The annual Herter Lectures will be delivered October 4, 5 and 6, by Prof. Dr. Albrecht Kossel of the University of Heidelberg, who was awarded the Nobel prize last year for important discoveries in medical chemistry.

Personal.—Capt. Robert P. Bay, M.C., N.G., Md., assigned Fifth Infantry, has been made chief surgeon with rank of major, and assigned to the First Brigade, vice Maj. Alexius W. McGlannan, resigned.——Dr. Gustav A. Thiede has been appointed a health warden vice Dr. George B. Scholl, resigned.——Dr. George Heller has recovered from his recent severe illness.

MISSOURI

Headquarters Established for Tuberculosis Society.—The Buchanan County Society for the Relief and Prevention of Tuberculosis has established permanent headquarters at 2137 South Sixth Street, St. Joseph, where reports will be received, or information may be obtained, regarding the treatment of tuberculosis.

Personal.—Dr. M. C. Stone, Kansas City, has been appointed state bacteriologist to succeed Dr. Newton McVey.——Dr. Albert H. Myerdick, formerly city dispensary physician of St. Louis, has been appointed physician to the State Penitentiary at Jefferson City, succeeding Dr. James A. Waterman, who has been recently appointed superintendent of State Hospital No. 4, Farmington.——Dr. Price, assistant physician at State Hospital No. 3, Nevada, has resigned and will practice in Independence.——Dr. J. R. Van Atta has been appointed pathologist to the Kansas City General Hospital, vice Dr. M. C. Stone.——Dr. Albert B. Stone, Lamar, has been appointed a member, and elected secretary, of the Barton County Board of Health.

Hospital Staff Named.—The following medical and surgical staff is announced for the Kansas City General Hospital, for

the year beginning September 1; superintendent, Dr. Louis W. Luscher; attending surgical staff, Drs. Jabez N. Jackson, John F. Binnie, John M. Frankenburger, Hermann E. Pearse, Jefferson D. Griffith, Howard Hill, Ernest F. Robinson and William D. Foster; attending medical staff, Drs. John L. Robinson, Charles C. Conover, Robert T. Sloan, Frederick McK. Lowe, Franklin E. Murphy, Hugh D. Hamilton, Arthur C. Leonard and Scott P. Child; consulting staff: pediatrics, Drs. Clay S. Merriman, Frank C. Neff and Jesse E. Hunt; orthopedics, Drs. C. B. Francisco and Robert McE. Schauffler; gynecology, Drs. George B. Norberg and C. Lester Hall; otology and laryngology, Drs. Havel B. Tiffany, Andrew W. McAllester, Jr., and Joseph S. Lichtenberg; dermatology, Drs. Halsey M. Lyle and William Frick; neurology, Drs. John Punton and Henry O. Hanawalt; attending physician, Dr. G. Wilse Robinson; assistant attending physician, Dr. Rush E. Castlelaw; skiagraphy, Drs. Edward H. Skinner and Oliver H. McCandless; obstetrics, Drs. Caleb A. Ritter and George C. Mosher; genito-urinary diseases, Drs. Ernest G. Mark and F. M. McCallum; pathologists, Drs. William K. Trimble and Edward L. Stewart; oral surgery, Dr. Harold P. Kuhn, and dentists, Drs. W. T. Stark and H. B. McMillan.

NEW YORK

Changes at Matteawan.—Dr. James V. May, the newly appointed superintendent of the Matteawan State Hospital for the Criminal Insane, assumed charge of the institution August 14.——Dr. Raymond F. C. Kieb, first assistant physician at the Dannemora State Hospital, has been appointed temporarily as first assistant physician at Matteawan.——Dr. Dr. John W. Russell, for sixteen years a member of the staff of the Willard State Hospital, has been appointed assistant physician at Matteawan.

To Prosecute Cold Storage Men.—Following investigations made by state inspectors in the larger cities the State Health Department has made public a statement that there are millions of pounds of butter, eggs, poultry and fish held in cold storage beyond the limited time and in a condition unfit for food. The Brennan Cold Storage Law, in addition to limiting the time during which food may be kept in cold storage, provides that food once exposed for sale shall not be restored and that all storage food must be labeled with the date of its receipt in storage and of its delivery therefrom, and that when sold, it shall be represented as cold storage food. The most flagrant violations of this law have been found in New York, Syracuse, Albany, Utica, Rochester and Buffalo. The offenders will be prosecuted and the State Department of Health will use all its powers to see that the law is enforced in the future.

New York City

Addition to Hospital.—The new addition to the Margaret Fahnestock Training School of the New York Post-Graduate Medical School and Hospital is completed, and the building now provides accommodation for 139 nurses.

Cholera Steamer in New York Harbor.—Cholera caused three deaths on the steamer *Re d'Italia* which arrived from Naples and Palermo, August 17. Two other passengers in the hospital show signs of the disease. The steamer is detained in quarantine, pending examination of the passengers.

Work of the Diet Kitchen Association.—This association has more than 1,500 babies under its care and has dispensed as much as 24,650 quarts of milk in a week. It supports nine milk stations and renders efficient help to the board of health. There has been practically no mortality among the babies cared for by this organization this summer.

Ridding City of Stray Animals.—The Society for the Prevention of Cruelty to Animals has been busy since June 1 gathering up homeless cats and dogs. During a single night as many as 866 cats have been captured. Since August, 12,500 have been caught and since the beginning of the work 113,186 animals have been collected. It is generally admitted that cats may be carriers of disease and the crusade has seemed necessary on this account.

No Public Cups After October 1.—A new sanitary code ordinance will go into effect on October 1, which abolishes drinking cups in all public places, public schools, railroad stations and theaters. School children will have to furnish their own cups and it will be considered a violation of the law for any person to loan his or her cup to another. In order to assist in this movement a large department store is making a free distribution of several hundred thousand pocket drinking cups to school children.

Personal.—Dr. H. C. Cohen, ambulance surgeon of the J. Hood Wright Hospital, suffered a dislocation of the shoulder and serious injuries of the head and face in a collision between the ambulance on which he was riding and an Amsterdam Avenue car.——Drs. William Linder and O. Kruskal, Brooklyn, have returned from Europe.——Dr. Frederick L. Flynn, Bronx, Brooklyn, was injured August 19, in a collision between his automobile and a milk wagon.——Dr. Hoffman, ambulance surgeon at the Bellevue Hospital, was injured in a collision between his ambulance and a street car, August 23.

The Typhoid Situation.—For the week ended August 26, sixty new cases of typhoid fever were reported in the Borough of Manhattan as against eighty-eight for the previous week. In the Bronx there were thirty-one new cases reported as against forty-seven for the previous week. During the past month there have been thirty-five cases reported from the Roman Catholic Asylum in the Bronx. The investigations of the health department seem to indicate that the milk and water-supply cannot be held responsible for the outbreak in the Bronx, and that it is probable that flies and mosquitoes have been instrumental in spreading the infection. Some of the cases in Manhattan have been traced to the milk supply.

Hospitals Under New Charter.—The proposed new charter for the city of New York provides for the transfer of Bellevue and the Allied Hospitals from the present trustee system to a commission to be appointed by the mayor. This would be a reversion to the old state of affairs and the condition of the hospitals is so much better under the present system that there is much opposition to this proposed change. At a recent hearing on this phase of the charter many charitable and philanthropic organizations appeared against the change but no one spoke in its favor. Representatives of some of these charities urge all who are interested in the welfare of the sick poor or in the hospitals to use their efforts to obtain the defeat of this provision at the coming session of the legislature.

NORTH DAKOTA

Personal.—Dr. Arthur A. Husser, Berthold, fractured two ribs and sustained serious bruises in an automobile accident near his home August 20.——Dr. Benjamin R. McAllister, superintendent of the State Hospital, Jamestown, has resigned and will practice at his old home at King City, Mo.

PENNSYLVANIA

State Meeting.—The Medical Society of the State of Pennsylvania will hold its annual convention in Harrisburg, September 25 to 28, under the presidency of Dr. John Boyce Donaldson, Canonsburg.

Making Progress on Sanitarium.—More than 100 men are now employed on the State Tuberculosis Sanitarium at Cresson, and the first building, the dining hall, is now nearly completed. It is a two and a half story structure in the form of a Maltese cross. The east ward, administration building and power plant are also in course of construction.

Philadelphia

Bequest.—The executors of the estate of Max Bamberger have sent $10,000 to the Jewish Hospital Association and $5,000 to the Jewish Foster Home and Orphan Asylum.

Cholera Suspects.—The North German Lloyd Steamship Brandenburg from Bremen, arrived at Philadelphia, August 23, and was placed in quarantine because of a case of suspected cholera in a second cabin passenger.

Addition to Hospital.—Plans are being prepared for a three-story addition to the Northwestern General Hospital. The annex is to be in the rear of the present hospital building and will contain a dispensary, an operating room and private rooms.

Typhoid Traced to Milk.—The report of contagious diseases to the health department gives a total of fifty-eight typhoid fever cases, of which five were reported from the Twenty-second ward and nine from the Thirty-second ward. These were traced to milk infection and steps have been taken to cut off the supply of infected milk.

Memorial Tablet Unveiled.—A bronze tablet, to mark a bequest by the late Mrs. Estelle P. Melville, wife of Rear Admiral George W. Melville, was unveiled in the women's ward of the Episcopal Hospital on August 21. The tablet bears the following inscription: "Comfort the Sick. In memory of three sisters—A. V. Palis Truitt, Melina Palis and Estelle Palis Melville." The bequest endowed three beds in the ward.

City Babies for Adoption.—The children's wards of the Philadelphia General Hospital are so overcrowded that Dr. Joseph G. Neff, Director of the Public Health and Charities, has advertised in the German and Italian newspapers of the city for foster mothers, who will receive $3 per week and carfare for a certain period. Each woman will be obliged to report weekly with the child after it has been placed in her care and both will be examined.

Gift of Gymnasium.—Jacob Disston, who recently donated the site of the old Disston residence at Tacony to the city of Philadelphia for use as a public playground, has made an additional gift of $10,000, which will be utilized in making a model playground, erecting an up-to-date gymnasium, the construction of which was begun August 24. The building is to be of brick, two stories in height, 40 by 40 feet, with two one-story wings, 29 feet 6 inches by 33 feet.

Infant Mortality Declines.—Nearly one-third of the deaths of the city for the week ending August 26 were of children under 2 years of age. The total number of deaths was 464 and the total of children under 2 years was 149, of which 104 died of enteritis. But despite these figures the infant mortality in the city for the first three weeks of August was reduced 36 per cent., as compared with the corresponding period of last year. This is accounted for by the fact that the milk supply has been greatly improved by refrigeration in transportation, by better equipment of hospitals and by the city's corps of visiting nurses. In the first three weeks of August, 1910, there were 688 deaths of children under 5 years and in the same period of this year there were 434.

Personal.—Drs. Penn Gaskell Skillern and William W. Keen have sailed for Europe.——Dr. John F. McCloskey was badly injured in an automobile accident on August 18.——Dr. Herbert A. Bolan, who sustained a concussion of the brain from a fall, August 22, is recovering.——Dr. Gertrude A. Walker has recently given to the hospital connected with the Women's Medical College of Pennsylvania $1,000 for the endowment of a baby's crib in the College Maternity.——Dr. Herbert A. Bolan suffered a cerebral hemorrhage August 21, and was taken to the Presbyterian Hospital.——Dr. John F. McCloskey had three ribs broken and sustained severe contusions and scalp wounds when his automobile ran into a fallen tree, near Philadelphia, August 19.

WASHINGTON

State Meeting.—The annual meeting of the Washington State Medical Association will be held in Spokane, September 7, 8, 9, under the presidency of Dr. Wilson Johnston, Spokane. A public meeting is to be held under the auspices of Dr. J. B. Anderson, city health officer.

Personal.—Dr. George T. Boyd, Palouse, fractured his right arm, August 2, while cranking his automobile.——Dr. Frank A. St. Sure, formerly of Madison, Wis., has been appointed surgeon for the Chicago, Milwaukee and Puget Sound Railway at Ellensburg.——Dr. William L. Hall, Spokane, who recently fractured his ankle, is recuperating at his orchard home in Green Bluff Prairie.

Antituberculosis Association Election.—At the annual meeting of the Washington Association for the Prevention and Relief of Tuberculosis the following medical men were elected to office: president, Dr. Christen C. Quevli, Tacoma (re-elected); vice-president, Dr. Wilson Johnson, Spokane; secretary, Dr. Walter C. Lippincott, Seattle; and directors the president and Drs. James R. Yocom, Tacoma; William S. Durand, Everett; Cornelius J. Lynch, North Yakima; Edward B. Nelson, Spokane; William C. Cox, Everett; James Sutherland, Spokane; Elmer E. Heg, Seattle; Eugene R. Kelley, Seattle, and Dr. Lee M. Ganson, Odessa.

GENERAL NEWS

Missouri Valley Physicians to Meet.—The twenty-fourth annual meeting of the American Academy of Ophthalmology ley will be held in Omaha, September 7 and 8, with headquarters at the Rome Hotel, under the presidency of Dr. Donald Macrae, Council Bluffs, Ia.

Eye, Ear and Nose Specialists to Meet.—The sixteenth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held in Indianapolis, September 25 to 27, with headquarters at the Claypool Hotel, under the presidency of Dr. John J. Kyle of Indianapolis. Dr. Albert Gray of Glasgow, Scotland, will be the guest of the academy.

Pathologists and Nurses Wanted for Philippines.—The United States Civil Service Commission, Washington, D. C., will send to those interested circulars concerning vacancies. To a bacteriologist and pathologist at Manila a salary of $2,000 is offered. An examination will be held September 23. The same commission desires trained nurses for the Philippines and the Indian Service.

Meeting of Pure Food Departments.—At the annual convention of the Association of State and National Pure Food Departments, held in Duluth, Minn., August 21 to 24, Seattle was chosen as the site of the next meeting, and a telegram expressing confidence in Dr. Harvey W. Wiley, and promising support of his official acts was ordered sent to the President. The following officers were elected: Lucius P. Brown of Tennessee, president; H. E. Barnard, C. H. Billingsby and Joel G. Winkjer, Jr., vice-presidents; W. M. Allen, secretary; James Faust, treasurer; and Edwin De Barr, and Dr. Samuel J. Crumbine, Topeka, Kan., and Dr. Charles D. Woods, executive committee.

International Municipal Congress.—The preliminary program of the International Municipal Congress and Exposition to be held at the Coliseum in Chicago, September 28 to 30, announces the following general subjects for discussion: September 28, morning, "Methods of Controlling a Milk Supply;" afternoon, "Control of Contagion and School Inspection;" September 29, morning, "Protection of Water and Disposal of Sewage;" afternoon, "Yard Sewage and Slaughter Houses;" evening, "The Law in Relation to Health Work;" September 30, morning, "Disposal of Garbage;" evening, "Cost of Health Department Per Capita." Dr. William A. Evans, former health commissioner of Chicago, has been appointed chairman of the Health and Sanitation Division of the congress.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Aug. 18, 1911.

The Sanitary Situation with Regard to Cholera

During the last session of the permanent commission of the superior council of hygiene, which was held a few days ago under the presidency of Dr. Roux, director of the Pasteur Institute, M. Mirman reported the sanitary situation with regard to cholera. He emphasized especially the fact that aside from some isolated cases which have occurred in the departments of Bouches-du-Rhône and l'Hérault (THE JOURNAL, Aug. 19, 1911, p. 667), no case of cholera has appeared in France, notwithstanding various recent reports in the papers, which may be due to the instructions issued by the government that every case of choleriform diarrhea shall be examined and treated as a suspected case of cholera. Cases of choleriform diarrhea are particularly numerous this season, and the newspapers, judging from imperfect information, have concluded that these cases were cholera. The commission passed a resolution that all possible means of publicity be used to remind the public, in all cities where cases of summer cholera appear, of the utility of boiling water for drinking and of eating vegetables only when cooked and of taking all precautions of individual hygiene.

Moreover, as a precaution, the minister of the interior has just prohibited the pilgrimages to Lourdes. The sanitary situation in l'Hérault where Lourdes is situated has, however, become satisfactory. The epidemic has disappeared and the few cases reported during the last few days are progressing toward recovery. At present there is only one epidemic focus, which is that at the insane asylum at Marseilles, but there the conditions make isolation as effective as possible.

Dr. Doyen and Foot-and-Mouth Disease

For some time an epidemic of foot-and-mouth disease has been raging in several departments, owing to the reluctance of cattle owners to report cases and to isolate the affected animals. Dr. Doyen has made use of this occasion to seek notoriety once more. Unfortunately Dr. Doyen is not content with the deservedly high reputation which he enjoys as a skilful surgeon, but periodically breaks forth in the daily papers with sensational accounts of miraculous cures that he alleges he has obtained in all kinds of infectious diseases and in tuberculosis especially by the employment of a certain *solution phagogène* of his own preparation. From the beginning of the present epidemic of foot-and-mouth disease Dr. Doyen has been asking from the minister of agriculture letters to the prefects of the infected departments authorizing him to carry on treatment of foot-and-mouth disease by his *solution phagogène*. The minister of agriculture complied and Dr. Doyen, after having carried on a series of experiments, has addressed an open letter which is of course reproduced in all the daily papers, in which he declares that "foot-and-mouth

disease is definitely conquered" and that the application of his treatment "is going to end infallibly in the revision of the rules of the sanitary police." At the same time with this letter, however, there were received at the ministry of agriculture reports from the presidents of the agricultural committees and letters from farmers stating that the results obtained by Dr. Doyen, although satisfactory in part, ought to be received with much reserve. The agricultural department, therefore, has thought it best to publish a note declaring that Dr. Doyen's results are not yet sufficiently attested and that until the efficacy of his treatment has been well established by methodical experiments it would be imprudent to relax the strictness of our sanitary legislation in respect to foot-and-mouth disease.

Abdominal Pneumococcic Septicemia

At the last session of the Société médicale des hôpitaux de Paris, Dr. Triboulet drew attention to the fact that while pneumonia, in the child as in the adult, represented the spontaneous and relatively benign fixation of the pneumococci, the case is quite different when the pneumococcic septicemia is localized in the abdomen. In addition to severe diarrhea, a duodenal catarrh (bilious diarrhea) is noticed which is particularly frequent in serious and prolonged cases with or without complications (otitis, purulent pleurisy, etc.). A diarrhea may also be associated with the peritoneal syndrome from the beginning, the diagnosis being uncertain and the symptoms recalling appendicitis or typhoid fever. Such cases demand continued treatment by colloidal silver. The patients, moreover, should be watched for a long time for the possibility of some development demanding surgical operation. These observations were confirmed by Dr. Caussade. The possibility of pneumococcus septicemia should be kept in mind in forming a diagnosis, since it is much more frequent than is generally believed.

The Rôle of the Nervous System in the Pathogenicity of Arteriosclerosis

Arteriosclerosis during the last two years has been the subject of a great number of experimental researches, but there has been no inquiry into the possible agency of the nervous system in causing these arteriosclerous lesions. On this subject M. Y. Manouélian recently made an interesting report to the Académie des sciences. He first divulsed a nerve fiber arising at the level of the solar plexus and running to the abdominal aorta in dogs and killed the animals at the end of a period varying from twenty days to two months. At the autopsy he found sclerous plaques in the region of the aorta corresponding to the nerve fiber divulsed, the rest of the aorta remaining absolutely unaffected. Another experiment consisting in divulsing a large nerve fiber running into the pulmonary artery after opening the thorax and making an incision in the pericardium. The dog having been killed sixty-five days after this operation, the autopsy showed a sclerous plaque in the region corresponding to the nerve fiber removed. Manouélian concludes that nervous lesions play an important rôle in the production of arteriosclerosis.

A Resolution with Regard to Criminals Acquitted on the Ground of Irresponsibility

At the close of the last session of the assizes of the Seine, the jury which had just acquitted a murderer on the ground of irresponsibility, sent to the minister of justice a note communicating a resolution, signed by twenty-eight of the thirty-one members of the jury, that the law should permit criminals acquitted on the ground of irresponsibility to be shut up in a special sanatorium until they ceased to be a danger to the public.

BERLIN LETTER

(*From Our Regular Correspondent*)

BERLIN, Aug. 11, 1911.

Personal

Professor Stähelin, first assistant at the Berlin Medical Clinic I, has been appointed director of the medical clinic at Basel, succeeding Professor Gerhardt. Professor Sauerbruch of Zurich has been appointed director of the surgical clinic at Königsberg, which position was refused by Professor Enderlen of Würzburg. Professor Trendelenburg, in Leipsic, who, as I have written already, resigned at the end of this semester, has received the title of privy councilor, with which is connected the title of *Excellenz*.

Professor Dr. Levy of Strassburg, the former assistant of Professor Foster, has received an extraordinary professorship in social hygiene. Professor Passow, the director of the Berlin Ear Clinic, has obtained an extraordinary professorship in rhinology. It is evident that this is meant to be a consolation for Passow's failure to obtain the management of the laryngologic clinic, to which position he aspires.

Unusual Jubilee

August 6, Privy Sanitary Councilor Friedrich Körte celebrated a very unusual jubilee, the seventieth anniversary of his doctorate. Körte, who is the father of the well-known surgeon, has for many years occupied a prominent position in Berlin medical circles. When only a young man he was elected president of the Gesellschaft für wissenschaftliche Medizin, a proof of his high repute among colleagues. Later, he succeeded in uniting this society with the Gesellschaft Berliner Aerzte (founded by Albrecht v. Gräfe) to form the Berliner medizinische Gesellschaft. Körte was president of this sociey, and was later succeeded by his friend Rudolf Virchow. In the professional life of Berlin, Körte was for a long time a leading figure. When in 1887, in Prussia, the Aerztekammer was founded as a professional representation, Körte was the first president of the Berlin Aerztekammer. Now, at the age of 93, he enjoys comparatively good health, physically and mentally.

Conflict Between Physicians and Krankenkassen

In Halle a conflict has broken out between the physicians and the Krankenkasse organization, the former demanding a family insurance and also the free choice of physicians. The central meeting of the Krankenkassen rejected the propositions, as it was claimed to be impossible to pay the total sum of 10 to 12 marks ($2.50 to $3.00) for each insured individual.

The Warfare Against Sleeping-Sickness

As reported, the chief of the colonial health-board, Professor Dr. Steudel, has just left Marseilles for German East Africa where he will pursue the study of sleeping-sickness. The route is from Mombassa via the English Uganda railroad to Lake Victoria, where an inspection of the sleeping-sickness camps along the eastern shore will take place. From here Dr. Steudel will travel to Muansa, by the same lake, this point offering special interest, being an endemic seat of the disease. In Bukoba, also by the lake, will be visited the two oldest of sleeping-sickness camps in German East Africa, which have existed since 1907. Thence the journey will continue to Kissenji, by Lake Kiwu, from the south end of which the road goes through the Russisi Valley to Usambara, at the northern end of Lake Tanganyika, the government seat of Urundi. The Russisi Valley is of especial interest because it is the main road from Tanganyika, from which direction the disease is spreading; for protection much timber has been cleared here. Six sleeping-sickness camps will be visited at the northern end of Tanganyika where the disease claims the most victims in the German territory. From Ujiji, the terminal point of the East African Central Railroad, the journey will lead over Tabora to the angle of the road and then with the Central Railroad, as far as it is completed, back to Daressalam. Thus, the hygienic conditions along the railroad as well as in the capital, Daressalam, will be studied; especially the preventive measures against malaria will be tested. A visit is planned to the high altitude sanatorium Wugiri and perhaps also to the settlement at Kilimanjaro. The trip is planned to last about five months.

Infant Mortality in the Large Cities

According to statistics compiled at Amsterdam, that city has the lowest infant mortality among twenty large European cities, namely 8 per 100 births. Next comes Paris with 9 per cent.; third, London with 10.2 per cent.; and fourth, Milan with 12.4. The highest figures are furnished by Moscow, 32.6 per cent., and St. Petersburg, 25 per cent; then follows Breslau with 20.7; Munich, 19.2; Leipsic, 17.2; Vienna 16.4; Budapest 16.2; Berlin 14.6; Hamburg, 13.8; Dresden 13.3, after which follow Rome, Naples, Manchester, Liverpool, Birmingham and Glasgow. As a whole, the infant mortality in the twenty cities during the last three decades has decreased as follows: In Munich from 36.9 to 19.2; in Breslau from 35.0 to 20.7; in Berlin from 31.3 to 14.6; in Dresden from 24.3 to 13.3; but in Moscow only from 34.6 to 32.6; in St. Peterburg from 29.9 to 25.0; in Vienna from 18.8 to 16.4; in Rome from 18.8 to 13.4; in London from 15.8 to 10.2; in Paris from 18.4 to 9.4, and finally, the very remarkable decrease in Amsterdam, from 24.5 to 8.0 per 100 births.

Marriages

LEO BARTON ALLEN, M.D., Canandaigua, N. Y., to Miss Eugenia Steelman of Manayunk, Philadelphia, August 16.

MARMADUKE D. MCCOMAS, M.D., Fall River, Kan., to Miss Myrtle Boughton Ide of Topeka, Kan., August 14.

BEECHER B. BALDWIN, M.D., Elkhorn, Neb., to Miss Roma Romine of Marshall, Mo., at Omaha, August 16.

NICHOLAS BACON WAGNER, M.D., Eveleth, Minn., to Miss Kjistem Olson of Manitowoc, Wis., August 15.

ANDREW PACKER, M.D., Brooklyn, N. Y., to Miss Sophie Graham Booker of Raleigh, N. C., August 16.

JOHANNES M. BACHER, M.D., San Jose, Cal., to Miss Lillian A. Parker of Salinas, Cal., August 9.

PAUL EUGENE GWIN, M.D., Dolomite, Ala., to Miss Lulu Allen of Bessemer, Ala., August 17.

ERNEST MORRIS SEYDELL, M.D., to Miss Margaret M. Carter, both of Wichita, Kan., August 8.

CHARLES FORD, M.D., to Miss Olive Green, both of Waggoner, Ill., at St. Louis, recently.

ARNOLD BURKELMAN, M.D., to Mrs. Mary J. Schallert, both of Los Angeles, Cal., August 17.

FRANKLIN RAYMOND DRAY, M.D., to Miss Anita Meyer, both of San Francisco, August 10.

C. B. WYCOFF, M.D., Greensburg, Kan., to Miss Rose Snyder of Topeka, Kan., August 9.

KATE ARMSTRONG, M.D., Kewanee, Ill., and Leroy Ewan of Cuba, Ill., August 24.

FREDERICK AMON BERRY, M.D., to Miss Amy H. Gust, both of Chicago, July 26.

Deaths

Charles Voorhees Butler, M.D. New York University, New York City, 1893; of New Brunswick, N. J.; a member of the American Medical Association; a member of the staff of St. Peter's Hospital, New Brunswick, and Wills Memorial Hospital, Philadelphia; acting assistant surgeon, U. S. Army, during the Spanish-American War; died in Paris, France, July 15, from septicemia following a carbuncle, aged 42.

Herman P. Bender, M.D. University of Freiberg, Germany, 1879; a member of the Medical Society of the State of New York; a well-known surgeon of Brooklyn; radiographer to the German Hospital and president of its medical board, and also a member of the staff of Kings County Hospital; while alighting from a trolley car in Brooklyn, August 15, was struck by a speeding automobile and instantly killed, aged 54.

Guy Abbott Grafton, M.D. University of Minnesota, Minneapolis, 1899; of Hayward, Wis., formerly of Winona, Minn.; a member of the American Medical Association; died in St. Joseph's Hospital, Ashland, Wis., August 9, from acute peritonitis, following fracture of the leg in an automobile accident, a week before, aged 34.

John Henry Korff, M.D. College of Physicians and Surgeons, New York City, 1869; formerly a specialist on diseases of the eye and ear of New York City, and later an employee of the U. S. Subtreasury, Manhattan; died at the home of his son in East Orange, N. J., August 16, from cerebral hemorrhage, aged 67.

Edward O. Gratton (Years of practice, Illinois, 1878) hospital steward and acting assistant surgeon U. S. Army, assigned to the Seventy-Second Illinois Volunteer Infantry during the Civil War; a member of the first Board of Trade of Chicago; died at his home in Harvard, Ill., August 18, aged 84.

Edward Bernard Coburn, M.D. Albany (N. Y.) Medical College, 1890; a member of the Medical Society of the State of New York and the New York Academy of Medicine; surgeon to the New Amsterdam and Cornell dispensaries; died at his home in New York City, August 10, aged 43.

Patrick R. Bailey, M.D. University of Nashville, Tenn., 1868; a Confederate veteran; for thirty-four years an employee of the United States postal service; head of the mailing division of the Nashville Post Office; died at his home in Nashville, August 16, from heart disease, aged 64.

Benjamin Wilson, M.D. College of Physicians and Surgeons, New York, 1863; a member of the American Medical Association; surgeon of U. S. Volunteers during the Civil War; died at his home in Rochester, N. Y., August 13, aged 71.

Rudolph Frederick Bauer, M.D. Hahnemann Medical College, Philadelphia, 1885; University of Pennsylvania, Philadelphia, 1894; a member of the American Medical Association; formerly a member of the staff of the Wills Eye Hospital; chief of the eye clinic of St. Agnes Hospital and ophthalmologist to the German Hospital, Philadelphia; died at his home in Philadelphia, August 10, aged 49.

John Randolph Quinn, M.D. Long Island College Hospital, Brooklyn, N. Y., 1872; a member of the Medical Society of the State of New York and for forty years a practitioner of Brooklyn; died at his home, August 10, from cerebral hemorrhage, aged 64.

F. W. Van Dyke, M.D. Bellevue Hospital Medical College, 1875; formerly first mayor of Grants Pass, Ore., and president of the Oregon State Medical Association in 1910; died at his home in Grants Pass, August 11, from disease of the intestines, aged 59.

Frank Ellsworth Bratt, M.D. Medical College of Ohio, Cincinnati, 1896; of Cincinnati; a member of the Ohio State Medical Society; physician of the Fourth School District; died suddenly in Newport, Ky., August 20, from heart disease, aged 45.

Henry William Sheetz, M.D. Jefferson Medical College, 1869; for two terms a member of the South Bethlehem Burough Council; a member of the Medical Society of the State of Pennsylvania; died at his home in South Bethlehem, August 14, aged 65.

Charles Albert Bourk, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1880; a member of the Teller County Medical Society; died in Victor, Colo., July 17, seven days after an operation for appendicitis, aged 55.

John T. Kennedy, M.D. Tulane University, New Orleans, 1868; for more than twenty years vice-president of the Fannin County (Tex.) National Bank; died at his home in Bonham, August 17, from heart disease, aged 71.

Quincy Adams Lowe, M.D. Long Island Hospital College, Brooklyn, 1873; a veteran of the Civil War; for twenty-six years a practitioner of Crookston, Minn.; died at his home in Riverdale, Cal., August 5.

Ralph N. Gordon, M.D. University of Michigan, Homeopathic College, Ann Arbor, Mich., 1897; for thirty-five years a practitioner of Arlington, Ill.; died at his home in Seattle, Wash., August 7, aged 69.

Lewis Almon Harmon, M.D. Grand Rapids (Mich.) Medical College, 1905; of Marshall, Mich.; died in a hospital in San Antonio, Tex., August 10, shortly after an operation for acute peritonitis, aged 34.

Exeter P. Vaux, M.D. University of Louisville, Ky., 1876; a member of the Medical Society of the State of California; died at his home in Santa Cruz, April 14, from cerebral hemorrhage, aged 59.

William Joseph Mason, M.D. Atlanta (Ga.) Medical College 1884; of Riderville; a member of the Medical Society of the State of Alabama; died at Selma, in July, from nephritis, aged 50.

Samuel Reed Richey (license, Indiana, 1897); died at his home in Donaldson, Ind., August 1, from ulceration of the pylorus, complicating chronic gastro-intestinal catarrh, aged 70.

James J. Gleeson, M.D. University of Pennsylvania, Philadelphia, 1898; of New Haven, Conn.; died in St. Raphael's Hospital in that city, August 12, from pneumonia, aged 36.

Samuel O. Moore, M.D. University of Louisville, Ky., 1886; of Winnsboro; a member of the State Medical Association of Texas; died at Mineral Wells, Tex., August 16, aged 54.

Michael John Crilley, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1869; of Prescott, Ariz.; a veterin of the Civil War; died in Foster, O., August 13, aged 64.

Patrick J. Byrne, M.D. Bellevue Hospital Medical College, 1888; a member of the American Medical Association; died at his home in Bronx Borough, New York, August 3.

Alphonso Armstrong, M.D. Medical College of Ohio, Cincinnati, 1871; died recently at his home in Kewanna, Ind., from heart disease, aged 67.

Snowden Robertson, M.D. Atlanta (Ga.) Medical College, 1873; died at his home in Dallas, Ga., May 31, from cerebral hemorrhage, aged 71.

Morse Stewart, M.D. Detroit (Mich.) Medical College, 1878; of Petite Côte, Que.; died in the Hotel Dieu, Windsor, Ont., August 10, aged 58.

Edward R. Tevis, M.D. Louisville (Ky.) Medical College, 1880; died at his home in Brooksburg, Ind., June 30, from uremia, aged 55.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

JAROMA

A New, Euphonious Name for an Old, Ill-Smelling Drug

It has been frequently pointed out that most nostrums contain well-known drugs as their essential constituents. These are often disguised under fanciful names and sold under extravagant claims and at exorbitant prices. As examples may be mentioned:

Cane sugar for curing tuberculosis (Hydrocine, Oleozone, Oxydase).

Milk sugar for hay fever (Plantoxine).

Epsom salt for "softening the skin" (Spurmax).

Boric acid for deodorizing purposes (Amolin deodorant powder).

About eighteen months ago the attention of THE JOURNAL was called to a preparation called "Jaroma," marketed by the Jaroma Company of New York City, and advertised to physicians as a specific for sleeplessness. The general tone of the reading matter indicated that Jaroma probably belonged to the same class of humbugs as Oleozone and Plantoxine. As the efforts of the promoters at that time appeared to be devoted more assiduously to the sale of Jaroma Company stock than to the exploitation of the remedy, it was not considered worth while to make an analysis of the preparation. Recently, however, an advertising campaign for the sale of the remedy has been inaugurated both in the lay and to a limited degree in the medical press. A quarter-page advertisement has been appearing in medical journals often supplemented by a "reader" which still further sets forth the supposed merits of the nostrum. In the advertisements in the daily papers the assertion is made that Jaroma is indorsed by the medical profession and in support of this, parts of the "reading notices" from the medical journals are quoted. Once more then we have the edifying spectacle of medical journals lending their pages to the exploitation of a fraudulent "patent medicine" and aiding and abetting in humbugging the public.

One medical journal which carries advertisements for this nostrum describes Jaroma in part as follows:

"A DISTINCT ADVANCE IN THE TREATMENT OF INSOMNIA

"Recently a new hypnotic has become available to the profession and careful investigation seems to indicate that an ideal sleep-producer has been discovered. This new product, called Jaroma, is of vegetable origin and is obtained from a gum resin, in turn secured from narthex, a species of umbelliferous plant grown in provinces of Persia and Beloochistan. This gum resin from which Jaroma is prepared has long been used in the Orient for special purpose, while in Great Britain it has been successfully employed medicinally as an antispasmodic.

"Through the use of Jaroma in appropriate dosage, natural sleep is obtained from which in four to eight hours a patient awakens refreshed and vigorous. No after-effect is produced and this eligible remedy is totally devoid of any depressing or toxic action. Its full physiological effect can be obtained as long as necessary without having to increase the dose and it has no habit-forming tendencies."

The circulars accompanying the nostrum are evidently intended for the laity, as may be seen from the following:

"Are you nervous? Take Jaroma Vegetable Tablets.

"Can't you sleep? Take Jaroma Vegetable Tablets."

"Jaroma Vegetable Tablets, the new & wonderful specific for the 'AMERICAN DISEASE' NERVOUSNESS in its various forms."

". . . . Jaroma is the needed special nerve food to counteract the special strain of modern American business and social life."

"For the discovery of the Jaroma formula we are indebted to an eminent German Nerve Specialist who has had most gratifying results from this compound in his private practice."

Jaroma having gone to the medical profession its examination was taken up by the Association's chemists who reported as follows:

LABORATORY REPORT

Narthex, the alleged source of Jaroma, is a nearly obsolete name for a genus of plants from some species of which the well-known drug asafetida is obtained. Physicians who are familiar with the origin or sources of drugs will have little difficulty in recognizing this substance from the mysterious description given in the "readers" that appear in certain medical journals, while no one could fail in identifying it by breaking one of the Jaroma tablets!

It is put up in tablet form in packages to be retailed at 10, 25 and 50 cents, the 10-cent size containing two and the 50-cent size twelve of the tablets.

Qualitative tests demonstrated that the medicinal portion of the tablets consists of asafetida, calcium sulphate (gypsum) and powdered capsicum, the greater proportion consisting of the two former ingredients. The absence of hypnotic alkaloids, bromids and chloral was demonstrated and other hypnotics such as diethyl-barbaturic acid (veronal) and sulphonmethane (sulphonal) were not found. Although no exact quantitative separations were made it is believed that a tablet containing asafetida 3 grains, gypsum 2 grains and capsicum

A New
Vegetable Hypnotic
JAROMA
INDICATED IN INSOMNIA
FROM ALL CAUSES
JAROMA COMPANY, 69 Fulton St.
New York City
When writing Advertisers, please mention
CAN'T YOU SLEEP?
Jaroma, a New Discovery Indorsed by the Medical Profession, Contains No Opium, Morphine or Other Habit Forming Drugs.
Druggists sell it at 10c and 25c per

Photographic reproduction (reduced about one-half) of typical advertisements of Jaroma. On the left is the advertisement that has appeared in such medical journals as the *International Journal of Surgery, American Medicine, Medical Council, American Journal of Clinical Medicine*, and possibly others; on the right is a typical newspaper advertisement. This particular one appeared in the Buffalo *Evening Times*.

1/10 grain, would have properties similar to Jaroma. As gypsum has been frequently employed as an adulterant of asafetida the analyst has no means of demonstrating whether the calcium sulphate found in the tablets had been added as a "make-weight" or whether it is a part of the "formula" of the "eminent German Nerve Specialist."

Thus according to the chemists' report this "new vegetable hypnotic" and "special nerve food" is, essentially, asafetida. Although in rational medicine no hypnotic powers are claimed for this drug it is often prescribed in certain forms of hysteria, while as a condiment, it has been known and used from prehistoric times. Therefore, the only new thing about the stuff is its name and the fraudulent use to which asafetida is put. Jaroma is another of those nostrums which are used to humbug both the public and the medical profession.

Miscellany

The Hemoleukocytic Formula in Human Tuberculosis.—The investigation of the changes which the blood undergoes in consumptives has given rise to many studies, and their authors have come to such divergent conclusions that up to the present it has been impossible to establish a well-defined hemoleukocytic formula which might serve as a standard for instituting a more or less exact hematologic diagnosis, as in the case of other diseases. Tuberculosis is a disease which develops between periods of calm and of exacerbations more or less intense, and it is precisely in these intervals that the infection progresses and changes its phases, so that if, in addition to the clinical observation, a repeated examination of the blood is also made, a type of hemoleukocytic desequilibrium may be established which will permit useful deductions to be made respecting the course of the infection, the reactional energy on the part of the organism, the therapeutics and even the provisional prognosis. Following these ideas M. Dominguez (*Sanidad y Beneficencia*, April, 1911) made an attempt to study the question. He has been able to follow thus far the course of forty observations, including adults and children in various stages of the disease. The greatest possible amount of data in relation to the phases of the infection has been obtained, and note of the clinical symptoms has been taken before making the analysis of the blood. In all patients the presence of the Koch bacillus in the sputum was confirmed. The results obtained from the globular count in his cases were as follows: The number of red cells per cubic millimeter oscillated between 2,612,500 (case with hemoptysis, intestinal invasion and bloody diarrhea) and 5,400,000. In only one case of pulmonary and laryngeal tuberculosis, cavitary and with cardiac hypertrophy, did the number reach 7,231,250. The most constant oscillation was between 4,187,000 and 5,921,250. The alterations in the size of the globules were very exceptional; the megalocytes and microcytes occurred only in cases of intense anemia; the achromia and polychromatophilia were slight. The red globules rarely exceeded the normal limits. In tuberculosis the changes in the blood were not constant, but variable from one case to another, and depending on multiple factors differently associated. When there really was anemia, it was moderate. Anemia was rarer and less intense in articular, osseous and vertebral tuberculosis. In exceptional cases, tuberculosis may produce profound anemia and there are two types; anemia at the beginning, frequent not only in the pulmonary but also in the ganglionic form, in which there is a slight hypoglobulia, a marked decrease in hemoglobin and a relative or absolute lymphocytosis. This is the hematologic type of which chlorosis has been made the characteristic and in which many of the so-called chlorotics are only sufferers from anemia due to incipient tuberculosis; the second group includes the anemia of the majority of consumptives who have reached a more or less progressive period of the disease, without hectic fever, and who only present slight alterations of the blood, with an almost normal globular value, and in which the toxemia and cachexia leave no doubt respecting the existence of a globular destruction, which when it does not appear at once, is because it is concealed by an inverse process. Advanced consumptives with hectic fever are generally anemic and the destruction of the blood in these cases is due to septicemia, the disglobulizing process being the same as that of the common septicopyemias. Hyperleukocytosis in consumptives without fever was rarely found, the highest figure being 18,750; in cases of hemoptysis and anemia, hypoleukocytosis more or less pronounced was found. The lowest figure was 3,125; the most frequent variations in different clinical forms oscillated between 6,250 and 12,000. In chronic apyretic tuberculosis or in slightly febrile forms, a polynucleosis of from 66 to 88 per cent., a mononucleosis of from 11 to 15 per cent., and an eosinophilia of from 3 to 10 per cent. were found. In laryngeal tuberculosis, the eosinophilia at times reached 0. In asthmatic consumptives, the figure found was 6.14 per cent. In a child with closed coxalgia and asthma, 8.09 per cent. Lymphocytosis rarely exceeded 46 per cent., the large and medium-sized cells predominating. Persistent lymphocytosis in closed coxalgias was notable, the figure varying between 31 and 40 per cent. Large mononuclears varied between .62 and 15.67 per cent., the most constant figures being from 9 to 12 per cent. In a general way, therefore, Dominguez finds that unadvanced consumptives with small hemorrhages, with fever and scant expectoration and tendencies to regression, present a leukocytosis of 9,000 to 12,500, a low mononucleosis of 12 to 15 per cent., and an eosinophilia which at times reaches over 5 per cent. when the manifestations cease and which maintains itself more or less in relation to the period of apparent recovery. In the laryngeal forms there is a lymphocytosis of between 25 and 35 per cent. In tuberculous coxalgias in children, there is a slight or no hypoleukocytosis, 37 to 55 per cent. polynuclears, and 4 to 8 per cent. polynuclear eosinophilia, the characteristic of these forms being the lymphocytosis, at times reaching 46 per cent.

Prophylaxis of Epidemic Poliomyelitis in Norway.—The authorities in Norway published in June an appeal to physicians to be on the lookout for acute poliomyelitis, saying that it has recently appeared at different points throughout the country and the number of cases and the virulence of the disease as observed now surpass all experiences since the epidemics of 1905. After referring to the circular, issued by the authorities in 1904, the appeal calls attention further to the necessity for isolation of the sick and their attendants during the acute stage (as a rule, for three weeks after the first symptoms). Especial care must be taken to sterilize the secretions from the nose and throat, and the dishes and spoons, etc., used by the sick must be boiled at once. All who have been in recent contact with the sick should be advised to gargle frequently with solutions of potassium permanganate or hydrogen dioxid, and the sick should do this also to render their secretions harmless for others. A terminal disinfection of the room is necessary as for other infectious diseases. Although there is no certain evidence of transmission of the disease by foodstuffs, yet this possibility should not be disregarded, as also the possibility of healthy carriers. The frequency of sore throat as an early symptom of poliomyelitis should be borne in mind, and persons with sore throat who have been exposed to poliomyelitis should be regarded as suspects. Mild abortive cases of poliomyelitis play an important part in the spread of the disease. Physicians are requested to notify the authorities of every new case, with a detailed case-history and remarks on the etiology which the case may suggest, and they are also asked to report the ultimate outcome. The appeal is published in detail in the *Tidsskrift for den Norske Lægeforening*, July 1, 1911, page 92.

Columbia University Quarterly.—This interesting publication often takes up matters of wide general interest. A recent number has several articles of general interest in the educational world, some pictures pertaining to the university and excellent pictures of two physicians who have recently died, Drs. Hermann Knapp and Edward G. Janeway. In a brief sketch of the career of Edward G. Janeway, Dr. Horst Oertel especially points to the eminence of Janeway's life-work as a pioneer in the development of scientific medicine in this country. His position in the field of pathologic anatomy is compared with the work Virchow was doing contemporaneously in Europe; both men breaking with the old scholasticism in the conception of disease. Oertel says that to Janeway a disease was never a type or a collective name given to pigeonholed association of fossilized ideas, but a living localized anatomic process for whose proper understanding one had to reconstruct former experiences. He approached his cases, therefore, with the attitude of the natural scientist. Among his achievements are mentioned that he was the first in this country to champion the infectious nature of tuberculosis; that he gave a description of leukemia for the first time in America, based on his own observations; and that to him we owe the first comprehensive, systematic presentation of syphilitic fever made anywhere. His activity in the establishment of pathologic anatomy as the objective basis of all rational medical thought and practice, may, however, be regarded as his greatest contribution to medicine.

The Malarial Cycle.—Reviewing Professor Ross' "Prevention of Malaria," E. A. Minchin says in *Science Progress* that "the malarial theorem, as Ross aptly terms it, may be stated briefly as follows: Malaria in man or animals is a disease caused by a minute parasite which lives and multiplies in the blood, passing its trophic phase within the red blood-corpuscles. The parasite is propagated from one vertebrate host to another by the agency of certain mosquitoes, which, on sucking the blood of an infected vertebrate, take various stages of the parasite into their stomachs with the blood; one stage of the parasite resists the action of the digestive juices of the mosquito and passes through a sexual process of generation and multiplication within the body of the mosquito, the cycle ending after some days with the production of many thousands of minute germs ('photospores,' Ross) lodged in the salivary glands. If the mosquito then succeeds in biting a vertebrate of the right kind, that is to say, of the kind which is a specific host of the parasite in question, the germs pass down its proboscis and are inoculated into the blood, thus bringing about a fresh infection of the disease. Every statement made in the foregoing sentences is based on rigorous experiment or accurate microscopic investigation. It only remains to add that the various species of malarial parasites are specific to certain hosts, vertebrate or insect; those of birds, for instance, can be transmitted only by mosquitoes of the subfamily Culicinæ; those of men only by the subfamily Anophelinæ." The aims of the principles of malarial prevention must be to interrupt the complex chain of circumstances on which the existence of the parasite depends. If the parasite cannot pass from man into the mosquito, or from the mosquito into man, it becomes extinct with the death of its host, if not before, says Professor Ross, and he offers three general principles of prevention: (1) mosquito reduction; (2) treatment of human beings with quinin; (3) protection of human beings against mosquitoes. Of these three principles—of which neither can be carried out completely—he regards the first-named (mosquito reduction) as giving the best results.

The Investigator's Curiosity.—As children we all have an instinctive curiosity concerning the world about us, a curiosity which most of us gradually lose as we fit ourselves into the social conventions. The investigator is one, however, in whom his natural curiosity still persists. He has never got past the annoying stage of asking "Why?" The events occurring on every side which are matters of course to most men, startle him into wonderment. Why does the spinning top not fall? Why do animals breathe faster when they run? Why does disturbed water take the form of waves? Why do roots grow downward? Why does the mouth become dry when one speaks in public? Such are the questions that arise. The answers to them may be incalculably valuable to mankind. The microscope revealed to Pasteur strange organisms in bad tasting wines. Why may not the disease of the wine, he asked himself, be due to the growth of these unusual germs within it? And later when he found germs also in silkworms, the further question was suggested: Why may not animals likewise become diseased in exactly the same manner? Whether the surmises of the investigator are true, the testimony of other men usually does not tell. He must turn to Nature herself and put the idea to the test of observation and experiment.—Cannon in *Science*.

Woman's Vital Resistance.—Woman excretes less carbonic acid and therefore is in less need of oxygen and needs it less vitally than man. This is thought to be a factor in woman's greater capacity to endure heat, especially the heat of rooms of high temperature, as is seen in bakeries and in the manufacture of charcoal, where it is said that women are little inconvenienced by a very high temperature. This is thought, also, one of the reasons why women experience less discomfort than men in breathing the rarefied air of high altitudes, and why, too, that women suffer less from chloroform anesthetics; and, for want of a better explanation, it has been given as the reason why women criminals more often survive hanging than men.—Stewart in the *Medical Record*.

Correspondence

Concerning Sanatorium and Dispensary Treatment of Tuberculosis

To the Editor:—Advocates of sanatorium treatment of tuberculosis have attempted to prove its value by giving the immediate results of treatment. The fact that immediate results are of slight importance in comparison with the ultimate results does not yet seem to be realized. The very name, sanatorium, indicates that it is a place where patients go to be cured, yet few men realize that tuberculosis is not cured in six months, but that it requires three, four or five years. The ultimate results, therefore, in patients who have undergone sanatorium treatment, are really the true test of its value. The economic importance of this question is great, for the cost of maintenance in the sanatorium, while probably less than that in the general hospital, is undoubtedly high. It is impossible to establish sanatoriums in sufficient numbers to accommodate all patients suitable for admission, and further, were this possible, the expense of maintenance would be a grievious tax on the public.

Many attempts have been made to solve this difficult problem of the treatment of tuberculosis among the masses, but not until a few years ago, when special dispensaries for the free treatment of the tuberculous were first established, was any real attempt made to treat tuberculosis outside of the sanatorium. In these dispensaries, not only medical advice but also material assistance and advice in regard to many questions pertaining to the home have been given freely. While the object of these dispensaries was at first to treat the tuberculous, it is now recognized that their main object is to prevent tuberculosis in the communities in which they are situated. However, for a time, the dispensary, in which many more patients could be treated than could ever be admitted to the sanatoriums, was looked on as vastly more important in the treatment of tuberculosis among the poor than the sanatorium. Many reasons were advanced to uphold this view. When a patient applied to the dispensary for treatment, the other members of his family were subjected to examination. Many early cases of tuberculosis were thus discovered and the problem arose at once as to what steps should be taken. In a large majority of instances, these patients could not afford to give up work, or leave home, and the question at once arose as to the efficacy of the dispensary treatment of tuberculosis.

A large number of individuals among the families of the tuberculous poor who apply for treatment at the dispensary, are found to show physical signs in the lungs. Some of them have symptoms and should be treated. Others have no symptoms and there is grave doubt as to whether these patients need anything more than careful watching. There can be no doubt that some of the good results obtained in dispensary or sanatorium treatment are due to the fact that such individuals have been subjected to treatment. It certainly seems unnecessary to treat patients for a disease of which they present no symptoms. They do, however, need careful watching and here the dispensary may do work of inestimable value. A number of dispensaries in America have published reports of the immediate results of treatment but such figures carry far less weight than the percentages of living, dead and untraced among a number of carefully classified patients. There is no doubt great difficulty in following these patients either to their death or to recovery at the end of five years, but with the excellent facilities at the disposal of many modern dispensaries, such, for example, as the visiting nurses, the various relief associations and the hearty cooperation of the boards of health, such work should present no insurmountable difficulties.

As yet, few, if any, carefully worked out statistics from dispensaries, showing the ultimate value of dispensary treatment, have been published. This method need not necessarily be pursued by every dispensary, but a number of dispensaries in, for instance, Baltimore, Boston, Chicago, New York and Philadelphia, could undertake this work for a series of years. There is no doubt that the class system introduced by Pratt

adds the breath of life to many dispensaries. It will be of great value to compare results obtained in the dispensaries before and after the introduction of this method. Many patients from the dispensaries are sent to sanatoriums; on return they should report to the dispensary. These patients should be studied separately and the problem of the best treatment of tuberculosis might then be solved.

There are few figures with which to compare the ultimate results obtained in sanatoriums. In a recent letter to the Lancet (1910, ii, 1446), Davies compares the results in 278 patients who did not go to a sanatorium with fifty who did. Excluding eighty-eight who died within three months, he was able to trace 116 patients, of whom 100 had died at the end of four years, and apportioning the seventy-four untraced patients in a similar manner, 14 per cent. of them were estimated to be alive, while 50 per cent. of the sanatorium-treated patients were living.

Many of the first class might not have been accepted in a sanatorium; still the very great difference (an increase of 250 per cent.) is very suggestive. Careful classification by dispensary physicians could render their figures exactly comparable in the two classes.

When seeking to compare the ultimate results of sanatorium treatment with other figures, Elderton and Perry ("A Third Study of the Statistics of Pulmonary Tuberculosis: The Mortality of the Tuberculosis and Sanatorium Treatment," Dulau & Co., London, 1910), on account of the paucity of more recent statistics were forced to refer to Williams' 1,000 cases reported among the well-to-do in 1872, and to the figures obtained from Pollock's "Elements of Prognosis," published in 1865. The results of this study show that whereas the death-rate in the sanatorium patients is about fourteen or fifteen times the ordinary death-rate, the patients treated by Williams and by Pollock had a death-rate only two or three times the ordinary.

The question is an important one. The sanatorium workers cannot solve it alone and must turn to others for aid. The organization of many dispensaries is at present so perfected that such work as we have outlined, while laborious, should be easy of accomplishment.

LAWRASON BROWN, Saranac Lake, N. Y.

Alopecia—Baldness

To the Editor:—An article on this subject in THE JOURNAL (Aug. 12, 1911) gives the causes of this very common and annoying trouble. As personal experience counts for much, I will give the treatment which in my own case has up to 70 years of age preserved a full and even growth of hair over the entire head, with no "skating rink" visible, or even thinness of hairy covering on the vault of the cranium. By inheritance I should have been bald at 45 or 50 years, as all my near relatives have shown that peculiarity; in fact, I know of none of the male members of my family as far removed as cousins who was not more or less deficient in hirsute covering of the head.

At about 40 years of age I began to notice that my hair was becoming somewhat dry and lifeless, and did really begin to drop out in rather alarming amount, so that I set about trying some means to prevent it. A friend advised me to get a wire brush, which I immediately did, and every morning I dampened (not soaked) the entire scalp with cold or lukewarm water. I used a comb only in the parting of the hair, the wire brush did the rest. About once a week I have used a little oil or grease, having tried several kinds; the most satisfactory effect was produced by cocoanut-oil. It keeps the hair soft and silky and does not mat the hair or plaster it down. Usually about once a month, when at the barber for a hair-cut (a trim, not a shingle) I get a good shampoo; I think that is often enough for a thorough scrubbing.

The wire brush keeps the scalp pretty free from dirt and dandruff, in fact I think the brush is the main factor in the treatment. By its gentle and not disagreeable friction of the scalp, it promotes the circulation and thus brings nourishment to the hair-bulbs, and gives vigor to the growing hair.

S. HENDRICKSON, M.D., Brooklyn.

Certified Butter in California

To the Editor:—I have read with interest the article by Dr. Hess on "The Need for a Certified or Pasteurized Butter," in THE JOURNAL, August 12, 1911.

It may be of interest to your readers to know that the California State Association of Medical Milk Commissions, April 19, 1911, adopted a full set of rules for the production of "certified butter," in accordance with a recent act of the legislature delegating the certification of butter to medical milk commissions. At a milk conference held in July, 1911, at the University of California, there was exhibited "guaranteed butter," labeled, "This butter is made from efficiently pasteurized cream. Guaranteed by the Regents of the University of California under the Food and Drugs Act, June 30, 1906, Serial No. 38,491." The experimental work leading to the adoption of both these measures is reviewed in THE JOURNAL, March 18, 1911, under the title, "Certified Butter in California." This communication states that the certification was to be on a basis of pasteurization. In conference, however, the milk commissions of the state decided that a pasteurized butter could not qualify as "certified."

JOHN N. FORCE, Berkeley, Cal.

Excision as a Method of Treating Spider Bites

To the Editor:—The treatment of spider bites with medicine has proved so extremely unsatisfactory in my experience that I have tried excising a small piece of tissue in three cases during this year and in all cases the results have proved satisfactory. Reasoning that the tissue would slough and that excising is the best treatment in carbuncle or in any condition of sloughing, I thought that excision would prove best in cases of spider bites and so it has. The part can be rendered painless by injecting 1/10 of 1 per cent. solution of cocain or some local anesthetic and if this is done properly the wound gets well rapidly. The low resistance of fat makes it necessary to excise a larger piece than one would at first think necessary. It is best to go to the underlying muscle or else sloughing may occur at the bottom of the wound. The amount of tissue necessary to be excised depends on conditions present, the length of time after the bite, and so forth. As a rule the pain stops and the patient is comfortable after the operation.

JOHN W. MATLOCK, Frost, Tex.

Royal Order of Lions Fraud

To the Editor:—I saw the statement of Dr. Charles F. Brigham in THE JOURNAL, August 26, regarding the "Royal Order of Lions" fraud. The promoter of this concern was in our town May 15, and showed me the receipts of half a dozen physicians of surrounding towns who had signed his contract. After discussing the matter with my father, who was present, and to whom the contract also seemed good, I "bit."

I received a bunch of blanks and other printed matter setting forth the benefits to be derived from a membership in the order, etc., with the stamped address 209½ Brady St. (Phone N. 4402-L), supposedly Decatur, Ill. I sent a letter to Decatur which was forwarded to Madison, Wis., and from there to Green Bay, Wis., and then returned unclaimed.

LOUIS H. MILLER, M.D., Pana, Ill.

Southerners Being Separated from Their Money

To the Editor:—There is a sharper who has been working the physicians here in the south. He pretends to be an old graduate and usually states that he wants a draft endorsed so that he may obtain money to pay the burial expenses for some of his relatives, or to have a relative operated on. He is about 5 feet 10 inches in height and of a swarthy complexion. If you will call attention to this in THE JOURNAL and ask anyone that he tries to bunco to have him arrested and wire the chief of detectives in Nashville you will be conferring a great favor.

LUCIUS E. BURCH, Nashville, Tenn.

Chalk Paste Not a Good Substitute for Bismuth Paste

To the Editor:—In THE JOURNAL, July 29, Dr. James R. Mitchell advocates the use of chalk paste as a substitute for Beck's bismuth paste. Though my experience with bismuth paste has been slight, and with chalk paste none at all, still I would caution against the substitution of the latter for the former. Whoever has had experience with bismuth subnitrate and calcium carbonate in various inflammatory conditions, knows that chalk cannot do what bismuth salts can do. In subacute or chronic gonorrhea, in simple diarrhea, in cholera infantum or cholera morbus, in various dermatologic conditions we cannot substitute chalk for bismuth, for bismuth possesses siccative, granulation-promoting and astringent properties which chalk does not possess. That it is not the nitrate radical that is responsible for these desirable properties is evident from the fact that the same properties are possessed by other bismuth combinations, such as the subcarbonate, the oxid, the hydrate (milk of bismuth), the salicylate, etc. The statement, therefore, that the bismuth in the bismuth paste acts merely as a mechanical stimulant seems to me unwarranted, and the caution against the substitution recommended by Dr. Mitchell is, in my opinion, a very necessary one.

WILLIAM J. ROBINSON, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OPERATION ON AN ANKYLOSED KNEE

To the Editor:—Can you give me any information regarding the operation on an ankylosed knee by which some function is restored to the joint? JOHN J. MCKENNA, Philadelphia.

ANSWER.—It is assumed that the term "ankylosed knee" in the above question refers to one in which true synostosis has taken place. The principle underlying the successful treatment of synostosed joints consists in the interposition, between the separated ends of the bones forming the joint, of some non-absorbable material which will prevent the bones from reuniting. The knowledge that the accidental interposition of fascia or other soft tissue between the fractured ends of a long bone frequently leads to non-union with the formation of a false joint, is undoubtedly what gave rise to the idea of interposing similar material between the ends of the bones to prevent the reunion of the bones in the ankylosed joint. The materials which have been introduced for this purpose are numerous, and are both inorganic and organic. The introduction of inorganic materials, such as Payr's magnesium plates, etc., has not been followed by very encouraging results. The use of organic material, on the other hand, has been followed by much more favorable results. Organic material may be used in the shape of dead membrane, such as hog's bladder acted on by chromic acid, or it may be used in the shape of living tissue consisting of transplanted flaps taken from the same individual. The latter method is the one which has given the best results. The tissue in the latter method may consist of entirely detached flaps of periosteum, or of attached flaps consisting of the fascia lata, together with subcutaneous fat.

If periosteal flaps are used the knee-joint is opened by a suitable incision which freely exposes the entire joint; the synostosed bones are separated with a chisel, the raw bony surfaces made as smooth as possible, that on the tibia being made slightly concave and that on the femur slightly convex, so that the one will fit the other approximately in the normal manner. An incision is then made over the inner surface of the tibia, usually at the upper part. A flap of periosteum is raised from the bone so as to include its osteogenetic layer. This detached periosteal flap, which should be large enough to cover the denuded surfaces of the bone, is then transferred to its proper surface, where it is stitched with catgut to hold it in place. A similar periosteal flap is then applied to the denuded surface of the other bone in the same manner. If motion of the joint is limited by cicatricial or contracted ligaments or bands, these are removed. The joint is then closed by properly suturing the soft parts around it, the operation wound over the tibia is likewise closed, and the leg is placed in a plaster cast.

In using attached flaps there may be used a single unilateral flap consisting of the fascia lata and fat covering it, which may be dissected up and turned into the joint, or bilateral flaps may be made. The latter is preferable, as the single long flap is more likely to undergo destructive absorption than two shorter bilateral flaps. The bones, of course, are prepared as already mentioned, and the flaps are sutured in place, the joint closed and the leg placed in a plaster cast. In order to be successful, this operation requires a high degree of technical skill, much experience and good judgment in the selection of proper cases for the operation.

WHAT IS THE "LAST ILLNESS"?

To the Editor:—There is a statute in my state which gives priority in favor of the claims of physicians for services rendered during the last illness of a decedent to an amount not exceeding $50. Please inform me what is meant by the phrase "services rendered during the last illness of the decedent." Would it cover any fixed period of time, for example, if a man suffered from consumption or Bright's disease for one or more years and then died of pneumonia or uremia? D. P. C., Va.

ANSWER.—A "last illness," under such a statute, according to Pennsylvania decisions cited in "Five Words and Phrases Judicially Defined," 4007, means the immediate illness resulting in the decedent's death. It does not include the illness caused by a serious injury from which he so far recovers that he is able to attend to business, but has a subsequent relapse. Nor can it be construed to include a lingering illness that has stretched across many months or many years. Men sometimes die from diseases of the heart, lungs or other organs, which commence with infancy, terminating only with old age. They are never well, always complaining, but lingering on throughout the usual period allowed to human life. In other instances the disease runs its course in a shorter time, but still the patient lingers, down at times, up and about at others. Such cases, where the illness is so protracted, the statute certainly does not contemplate. Where the disease assumes a fatal form, runs its course rapidly, the patient virtually prostrated, and the services of a physician constantly necessary, the case just as certainly is contemplated. Where a person suffered from softening of the brain, the progress of the disease being gradual and slow, the patient living for more than a year after the physician's attendance commenced, going about the house, waiting on herself generally, once visiting abroad for several weeks, the disease manifesting itself only in weakness and irritability up to within a short time of her death, when it resulted in apoplexy, prior to which the physician's attendance was irregular, he going only when called, but subsequent to the apoplexy his visits were regular and pretty constant, the latter period was the "last illness" for the services during which the physician was entitled to preference.

The term "last illness," however, has been held to include medical services rendered to a patient for a year and a half prior to his death, where he was suffering during the period from an incurable, progressive disease which resulted in his death.

TRICHOMONAS INTESTINALIS

To the Editor:—Please tell me whether or not *Trichomonas intestinalis* has any pathologic possibilities. I have a patient whose blood shows a most profound anemia with an increase in the eosinophils; white count normal. Repeated examinations of the stool show large numbers of the *Trichomonas intestinalis*. Is there any recent literature relative to this?

N. B. HARLAN, Freeport, Ill.

ANSWER.—*Trichomonas intestinalis* is commonly found in the intestinal canal, especially in cases of diarrhea. Hence the organisms are often seen in stools in cases of typhoid fever, cholera, chronic enteritis, etc. They are also not infrequently found in normal stools. Because they are so sensitive to acid, they do not ordinarily occur in the stomach but in conditions of diminished acidity, as for example, carcinoma, they may be found there in large numbers. Thus, their presence may be of some significance for diagnosis. Their pathogenic possibilities seem to be limited to sustaining or aggravating already existing catarrhal conditions, though some difference of opinion seems to exist regarding this point. Cases of severe chronic enteritis have been reported for which no cause could be found other than the large number of these parasites constantly found in the stools. For example, Askanazy (Aschoff's "Pathologische Anatomie," 1909, i, 183), mentions such a case which resulted fatally and in which autopsy revealed no other cause for the intense chronic ulcerative

enteritis found. He states further that these parasites seem to be able to cause diarrhea in children. There seems to be no evidence that they may directly cause anemia.

References in the literature to the pathogenesis of *Trichomonas intestinalis* are not numerous. Hare's "Practice of Medicine," 1907 edition, says that it is not important from a clinical point of view. Anders' "Practice," 1909 edition, says that the organism is not important from a pathogenic standpoint. Ricketts and Dick, in the last edition (just issued) of "Infection, Immunity and Serum Therapy," 1911, say: "It seems to be of not much pathogenic significance but finds in the liquid stools and in alkaline reaction conditions which favor its proliferation. It may be transmitted as a contagion." This book gives Epstein as the authority for the latter statement. An article in THE JOURNAL, Oct. 15, 1910, p. 1377, by G. C. Dalley, assigns *Trichomonas intestinalis* as the only discoverable cause of a case of gangrene of the lung.

DOSAGE OF SODIUM BICARBONATE

To the Editor:—Hale found that caffein was useless and sometimes even harmful when given with acetanilid to antagonize its harmful effects, but that sodium bicarbonate lessens the toxicity of acetanilid. However, I have seen no mention of the amount or the dose that was best given for this purpose as determined by experimentation. Can you give me any light on this?

C. E. MCREYNOLDS, M.D., Goodrich, N. D.

ANSWER.—On writing to Dr. Hale, we learn that he is not able to answer definitely the questions concerning the relative doses of acetanilid and sodium bicarbonate, but that he believes, from his experimental work, that fairly large doses of the bicarbonate are indicated. He suggests at least 3 grains to every 2 of acetanilid. In case of poisoning he suggests giving as an antidote sodium bicarbonate in divided doses up to 15 or 30 grains, depending on the effect produced. He states that so far as he knows, his laboratory findings have not been put to test by clinical trial.

THE NOGUCHI AND MUELLER MODIFICATIONS OF THE WASSERMANN TEST

To the Editor:—What is the present status of the Noguchi modification of the Wassermann reaction? Is it considered as reliable as the Mueller modification? Can you give the Mueller technic or tell where it may be secured? L. O. T.

ANSWER.—In the opinion of European authorities and some American, the Noguchi test is not so reliable as the original Wassermann. Many Wassermann workers regard it as not to be depended on alone. The Mueller modification is much more reliable. Its chief difference from the original Wassermann lies in the use of smaller amounts of the various reagents—a drop method. A consideration of the Mueller method will be found in the *Wiener klinische Wochenschrift*, 1907, No. 17, p. 514; 1908, No. 9, p. 282; 1909, No. 40, p. 1376.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Aug. 26, 1911.

Van Poole, G. M., major, detailed to represent the Medical Department of the Army at meeting Association Military Surgeons of U. S., Milwaukee, Wis., September 26 to 30.

Clayton, George R., M.R.C., granted two months' and ten days' leave of absence.

Wilson, William H., major, granted fifteen days' leave of absence.

Brewer, Isaac W., M.R.C., granted one month and fifteen days' leave of absence.

Richard, Charles, colonel, granted thirty days' leave of absence.

Snyler, Henry D., lieut.-col., is detailed to represent the Medical Department of the Army at the meeting of the American Hospital Association to be held in New York City September 19 to 21.

Smith, Herbert H., M.R.C., granted ten days' leave of absence.

Patterson, Edwin W., M.R.C., on expiration of his present leave of absence ordered to Fort D. A. Russell, Wyo., for duty.

Appel, Daniel M., colonel, leave of absence extended one month.

Stone, Frank P., dental surgeon, returned to Presidio of Monterey, Cal., from temporary duty at Army General Hospital, San Francisco.

Eastman, William R., captain, relieved from duty as attending surgeon, New York City, and ordered to Fort Riley, Kan., for duty.

Peed, George P., captain, granted thirty days' leave of absence.

Ford, Joseph H., major, so much of Par. 27, Special Orders No. 134, June 9, 1911, as relates to Major Ford, is revoked.

Brooke, Roger, major, on arrival at San Francisco, will report at General Hospital, Presidio of San Francisco, for duty.

Ashburn, Percy M., major, is ordered to Philippine Islands on transport Dec. 5, 1911, for duty on board, studying tropical diseases in the Philippine Islands.

Persons, Elbert E., major, relieved from duty as attending surgeon, Headquarters, Department of the East, and assigned to duty as attending surgeon, Eastern Division

Cutliffe, William O., M.R.C., is relieved from duty at Fort McIntosh, Texas, and will proceed to Fort Lawton, Wash., for duty as surgeon on transport *Dix*.

Bushnell, George E., colonel, is detailed to represent the Medical Department of the Army at annual meeting of New Mexico Tuberculosis Society at Las Vegas, September 6 to 9.

Lamble, John S., Jr., captain, on expiration of leave, will proceed to Fort McHenry, Md.

Robbins, Chandler P., major, is relieved from duty at Fort McHenry, Md., and will proceed to Fort Sill, Okla., for duty.

Duval, Douglas F., major, when relieved from duty at Fort Sill, will proceed to Fort Benjamin Harrison, Ind., for duty.

Suggs, Frank, M.R.C., having reported at Seattle, Wash., will proceed to Fort Lawton, Wash., for temporary duty.

Birmingham, Henry P., colonel, reports his departure, August 8, for Washington, D. C.

Casper, Joseph, first lieut., August 22, reports return from leave to sick in quarters this date, Fort Du Pont, Del.

Suggs, Frank, M.R.C., August 3, reports departure from Fort Egbert, Alaska, for Seattle, Wash.

Cooper, Wibb E., first lieut., August 5, reports departure for Manila on transport *Sheridan*.

Ferenbaugh, Thomas S., first lieut., August 16, reports departure from Langtry, Texas, for Barksdale, Texas, August 18, reports his arrival at Barksdale, Texas.

Gentry, Ernest A., first lieut., August 16, reports departure from Langtry, Texas, for Barksdale, Texas, August 18, reports arrival at Barksdale.

Usher, F. M. C., major, August 21, reports arrival at Fort Sam Houston, Texas, from Camp Mabry, Austin (Maneuvers Texas National Guard).

Pyles, W. L., captain, August 22, reports arrival at Fort D. A. Russell, Wyo.

Hall, J. F., captain, August 23, reports arrival at Fort Strong, Mass., for duty.

Denton, William, first lieut., August 21, reports arrival at Fort Sam Houston, from Camp Mabry, Austin, Texas (Maneuvers Texas National Guard). August 22, reports departure from Fort Sam Houston for temporary duty at Fort Bliss.

De Laney, Matthew A., major, granted leave of absence for one month to take effect about Aug. 24, 1911.

Medical Corps, U. S. Navy

Changes for the week ended Aug. 19, 1911.

Gatewood, J. D., medical director, commissioned medical director from July 11, 1911.

Gates, M. F., medical inspector, commissioned a medical inspector from July 11, 1911.

Shepard, G. W., P. A. surgeon, commissioned P. A. surgeon from Oct. 25, 1910.

Chambers, W., P. A. surgeon, commissioned P. A. surgeon from March 19, 1911.

Bacon, S., Melhorn, K. C., and McGuire, L. W., P. A. surgeons, commissioned P. A. surgeons from April 11, 1911.

Boland, M., P. A. surgeon, commissioned P. A. surgeon from July 12, 1911.

Phelps, J. R., and Clifton, A. L., P. A. surgeons, commissioned P. A. surgeons from July 15, 1911.

Henry, R. B., asst.-surg., detached from U. S. S. *Rainbow* and ordered to the naval hospital, Canacao, P. I.

Pratt, L. L., asst.-surg., detached from the naval hospital, Canacao, P. I., and ordered to the U. S. S. *Rainbow*.

Changes for the week ended Aug. 26, 1911.

Hoyt, R. E., surgeon, commissioned surgeon from June 11, 1911.

Jones, R. F., asst.-surgeon, commissioned assistant surgeon from Aug. 2, 1911.

Thomas, G. C., P. A. surgeon, detached from the navy recruiting station, Philadelphia, and ordered to the *Rhode Island*.

Schier, A. R., acting asst.-surgeon, appointed acting assistant surgeon from Aug. 16, 1911.

Donelson, M., P. A. surgeon, detached from the naval hospital, Newport, R. I., and ordered to the *Glacier*.

Dykes, J. R., P. A. surgeon, detached from the navy-yard, Portsmouth, N. H., and ordered to the naval hospital, Mare Island, Cal., for duty.

Diehl, O., medical director, commissioned medical director from July 20, 1911.

Lownes, C. H. T., medical inspector, commissioned medical inspector from July 20, 1911.

Evans, S. G., surgeon, detached from the *Pennsylvania* and ordered home to wait orders.

Bachus, J. W., P. A. surgeon, detached from the *Iris* and ordered to the *Pennsylvania*.

Owens, W. D., P. A. surgeon, ordered to duty at the naval hospital, Newport, R. I.

Giltner, H. A., asst.-surgeon, detached from the *Glacier* and ordered to the *Iris*.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Aug. 16, 1911.

Pettus, W. J., assistant surgeon-general, granted twelve days' leave of absence from Aug. 15, 1911.

Irwin, Fairfax, surgeon, granted nineteen days' leave of absence from June 27, 1911, on account of sickness.

Magruder, G. M., surgeon, granted seventeen days' leave of absence from Aug. 13, 1911.

Ceddings, H. D., surgeon, leave of absence for one month from June 23, 1911, on account of sickness, amended to read twenty-one days.

Nydegger, J. A., surgeon, granted two months' leave of absence from July 24, 1911.

Francis, Edward, P. A. surgeon, granted one day's leave of absence July 31, 1911; granted seven days' leave of absence from Aug. 11, 1911, under paragraph 191, Service Regulations.

Ebersole, R. E., P. A. surgeon, granted eight days' leave of absence from Aug. 5, 1911, under paragraph 191, Service Regulations.

Pettyjohn, Jos., P. A. surgeon, granted one month's leave of absence from Aug. 16, 1911.

Ashford, F. A., P. A. surgeon, granted one month's leave of absence from Aug. 17, 1911.

Preble, Paul, asst.-surg., granted one month's leave of absence from Aug. 14, 1911.

Grimm, R. M., asst.-surg., directed to proceed to Pineville, Ky., via Columbia, S. C., on special temporary duty.

Kolb, L., asst.-surg., granted seven days' leave of absence from Aug. 11, 1911, under paragraph 191, Service Regulations.

Boyd, Frank, A. A. surgeon, granted twenty-six days' leave of absence from Aug. 6, 1911.

Watson, Harry J., A. A. surgeon, leave of absence for thirty days from Aug. 14, 1911, amended to read thirty days from Aug. 2, 1911.

Wilbert, Martin I., technical assistant, detailed to represent the Service at the meeting of the American Pharmaceutical Association to be held at Boston Aug. 14 to 19, 1911.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE COMMON DRINKING CUP

One of the most significant features of the present campaign for better health conditions is the general and apparently spontaneous movement all over the country, against the use of common drinking cups, in railroad stations, trains, parks and public buildings. For years, the common cup has been the inevitable companion of the ice-water tank or fountain. Chained beside the water faucet, it might almost be said to be a national institution. But a sudden wave of public protest is rapidly sweeping it out of existence. The strange thing about this movement is that so little organized effort has been behind it, and that it is impossible to say exactly when or where the agitation for the abolition of the common drinking cup began. For these reasons, it is all the more gratifying, as an indication of growing public sentiment in favor of cleanliness and disease prevention. The substitution of individual glasses or of cheap temporary drinking utensils is so plainly in the interest of cleanliness and decency that but few of even the most confirmed conservatives have objected to this reform, nor has the most stubborn reactionary claimed that such legislation was inspired by selfish interests or due to the efforts of any "rings." The only explanation for the widespread general movement for the abolition of the common drinking cup is that the public became convinced that the common drinking cup was a filthy and disease-conveying utensil which belongs to an unsanitary past and that it should be dispensed with as soon as possible.

This campaign contains a lesson for those interested in progress in sanitary legislation and regulation. Education must precede legislation and regulation. Place the facts before the public in plain, every-day language, without exaggeration and with unmistakable proof, and the people will take care of the rest. Physicians and bacteriologists have for years known that disease could be transmitted by drinking vessels and that common drinking cups were a source of danger. These facts have become known to the general public and as soon as public opinion was educated to a sufficient point, legislation followed. These laws were not passed because physicians asked for them. The people did it.

A few extracts from recent papers are of interest in this connection. The Buffalo *Enquirer* grows philosophic and comments editorially:

"'What is one man's poison, signor, is anotner's meat or drink.' Likewise what is one period's improvement is another period's scorn.

"When an Erie train from Buffalo reaches the New Jersey line, the brakemen gather up the common drinking cups and put them out of reach and sight. When an Erie train starts from Jersey City, the cups are not in view. When the train crosses the New York line, the brakemen bring them from hiding and place them for use.

"It is law both ways. New Jersey, thoroughly down to date, has abolished the common drinking cup on railway trains. New York, a little slow, still requires by law, as a lawyer points out, that railroads shall supply water and drinking utensils to passengers. The common drinking cup is required by old law in New York, although it is forbidden by new law in New Jersey. So the Erie brakemen do the juggling act at the boundary line.

"No doubt it was considered a great blessing when the New York legislature decided to compel railways to supply a tank of water and a drinking cup on every passenger car. It was something over which to rejoice. Now, the drinking cup is a horror, a menace to health and life and its abolition is a measure of public safety.

"No doubt science and refinement will slaughter other customs. We do not know how vile and reckless we are until new revelations come along."

The Norfolk (Va.) *Pilot* says:

"It is a strange anomaly worthy the study of sociologists that sanitary reforms have to be forced on an unwilling, albeit an intelligent, people. . . . The common drinking cup must go. It is the dictum of all sanitary experts, physicians and students of public health. . . . As such abolition is not yet general throughout the states, as it doubtless soon will be, it has caused some inconvenience to passengers in interstate traveling. . . . Doubtless the railroads will shortly provide individual cups for passengers for the cost is infinitesimal and the inhibition of the 'cup of death' will soon obtain over a large section of the country if, indeed, it does not become the rule in every state. Convenient devices for obtaining individual cups at trifling cost are coming into use and it is a foregone conclusion that Virginia will not be far behind her sister states in adopting a system that makes for public health, refinement and civilisation. The 'cup of death' must go."

Evidently the question has some theological aspects, as shown by the observation of the Peoria (Ill.) *Star*, which comments on the views of an Episcopalian bishop of Wisconsin:

"Bishop C. C. Grafton, of the Fondulac diocese, favors the action of the State Board of Health of Wisconsin exempting churches from the operation of the rule against the use of the common drinking cup. 'God prevents the transmission of disease through the use of the common communion cup,' says the good bishop. 'The good Lord would not permit the transmission of disease to any of His worshippers through the means of their worship of Him. There has never been an authentic case of the contraction of disease through the communion cup, though the common drinking cup elsewhere should be strictly forbidden.' In spite of the good bishop's belief, the use of a common drinking cup is filthy and should be abolished, whether at communions or elsewhere. God doesn't interpose to save people from their own foolish acts. Punishment follows the infraction of a natural law, whether the person be saint or sinner, and tuberculosis can be imparted from a common drinking cup to a deacon as soon as to a tramp."

The Bay City (Mich.) *Times* realizes that the reform is in the interest of cleanliness, good health and comfort:

"There is no dodging the issue. The private cup is the cup of peace. It is a movement in the direction of health. It is the outgrowth of a condition which medical science has demanded as a safeguard.

"And yet some people are heard objecting to the removal of the drinking cup from railroad trains and other places. If the public cup is a convenience, why not have a public handkerchief, a public towel, a public tooth brush and a public manicure set? One is as reasonable as the other, when you get down to brass tacks.

"Some city boards of health and some common councils that have not yet advanced very far in medical jurisprudence are holding back. The public drinking cup is an old friend and they are loath to part from it. It has served Tom, Dick and Harry, has accumulated germs and microbes, and a rare selection of tobacco juice, onion odors, contaminated saliva and what-not, and it ought to be respected. . . . These boards of health which have made a study of the dangers connected with the promiscuous use of a cup, are really getting so far advanced in their way of thinking that it may become advisable to hold a school of instruction or a conference, so that the kickers against abolishing the public cup, may be heard on this very important question. At such a school, the kickers might also have an opportunity for advocating the public tooth brush and the public towel, and especially the public handkerchief, all of which are closely related to, and allied with, the public drinking cup."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

IOWA: Capitol Building, Des Moines, September 19-21. Sec., Dr. Guilford H. Sumner.
MASSACHUSETTS: State House, Boston, September 12-14. Sec., Dr. Edwin B. Harvey.
MISSOURI: Kansas City, September 25-27. Sec., Dr. Frank B. Hiller, Jefferson City.
NEW YORK: September 26-29. Mr. Harlan H. Horner, Chief of Examinations Division, Department of Education, Albany.

Constitution of the Association of American Medical Colleges

In the Educational Number of THE JOURNAL (Aug. 19, 1911) the Constitution of the Association of American Medical Colleges was published showing the various amendments which have been made from time to time since April 10, 1905. We discover, however, that Section 6, of Article 3, as printed shows that among other subjects, credit was allowed for "24 hours in osteopathy." Lest some captious reader may charge the Association with undue liberality in its allowance of credits, we hasten to say that the statement is due to a typographical error and that the clause should have read "24 hours in osteology." Further down the page is printed the section as it is now in force. This reads as follows: "Section 6.—No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of Doctor of Medicine."

Book Notices

AMERICAN MINERAL WATERS: THE NEW ENGLAND STATES. By W. W. Skinner, Chief, Water Laboratory. With a Chapter on Bacteriological Methods by G. W. Stiles, Jr., Bacteriological Chemist. Prepared Under the Direction of J. K. Haywood, Chief, Miscellaneous Division. Bull. 139, Bureau of Chemistry. U. S. Department of Agriculture. Paper. Pp. 111. Washington: Government Printing Office, 1911.

It is a valuable piece of work to take up American mineral waters in detail and give the chemical composition and the results of sanitary analysis and an inspection of the premises. The present bulletin covers only the springs of the New England States. The waters are classified according to their chemical character. Fortunately for the mineral water user, the organic purity of the waters of most of these springs is evident from the report of the analyses. In a few cases the water is reported to be of doubtful purity or the surroundings are said to suggest the possibility of contamination. In a few cases the presence of gas-forming bacilli in 1 c.c. of the water is noted, but the spring is not condemned on this account. The comments thus made should be a warning to the owners of such springs to remove objectionable features if they wish to sell their water. The report will be a valuable aid to the physician in selecting a mineral water, as he no longer needs to depend on the advertised analyses which were in most cases reliable, but in some cases failed to agree with the findings of the government chemists.

A LIST OF BOOKS ON THE HISTORY OF SCIENCE, THE JOHN CRERAR LIBRARY. January, 1911. Prepared by Aksel G. S. Josephson, Cataloguer. Paper. Pp. 297. Chicago, 1911.

The purpose of this list is to render easy the finding of the important classes of books with which it deals and the titles of which are now scattered through the public card catalogue. The list includes the social, physical, natural and medical sciences. It is gratifying to know that the John Crerar Library is especially rich in works on the history of the sciences of medicine. The material is well arranged. There is a complete index and the table of contents shows, at a glance, the groupings of the titles. The list is a distinct contribution to the bibliography of the history of science and will be of great value to students of that history and especially to the students of medical history, the interest in which is steadily increasing.

INFECTION, IMMUNITY AND SERUM THERAPY IN RELATION TO THE INFECTIOUS DISEASES OF MAN. By H. T. Ricketts, M.D., Late Assistant Professor of Pathology, University of Chicago. Second Edition. Revised and Enlarged by the Author and by George F. Dick, M.D., Instructor in Pathology, University of Chicago, with Preface by Ludvig Hektoen, M.D. Cloth. Price, $2. Pp. 785. Chicago: American Medical Association, 1911.

The first edition of this work appeared in 1906; as a result of more recent progress along immunologic lines, a thorough revision became desirable, and in this Dr. Ricketts was engaged at the time of his death from typhus fever, contracted in the course of his work on that disease. The revision thus left unfinished has been completed by Dr. Dick, of the department of pathology of the University of Chicago.

The new edition presents several distinct advances over the old. An entirely new part is devoted to the principles of infection; in this are discussed in some detail not only the more general aspects of the subject, but the various mechanisms taking part in the conveyance of disease. A second part is devoted to the discussion of the principles of immunity, and a third to the special features presented by individual diseases. Each of these parts shows considerable elaboration over the corresponding part of the earlier edition—an elaboration necessitated by the new phases of the subjects that have been recently developed. Thus in the second part new chapters have been devoted to the subjects of complement deviation, opsonins and anaphylaxis, and in the third the discovery of spirilla as an important cause of disease has resulted in the introduction of a new etiological group.

The work as a whole presents a thorough summary of our present knowledge of the problems of infection and immunity. The condensation necessary to cover so large and intricate a subject in the limits of a volume of moderate dimensions has not resulted in an unduly dogmatic form of presentation, and as a rule disputed problems are presented with clarity and discretion. As a comprehensive survey of a subject whose literature is so scattered as to be ordinarily inaccessible, the work occupies a distinct and very valuable place. Not only is this true for the practicing physician who may wish to keep abreast of recent developments along these lines, but as well for the special worker who desires to obtain a more general view of his subject.

DIE PALPABLEN GEBILDE DES NORMALEN MENSCHLICHEN KÖRPERS UND DEREN METHODISCHE PALPATION. Nach eigenen Untersuchungen an der Leiche und am Lebenden von Dr. Toby Cohn, Nervenarst in Berlin. III Teil: Hals und Kopf. Paper. Price, 8 marks. Pp. 585, with 92 illustrations. Berlin: S. Karger, 1911.

The present pamphlet of 200 pages is the third of a series, the first two covering 380 pages, and dealing respectively with the upper and lower extremities. The work is the result of an exhaustive study both of the cadaver and of the living subject and when completed will cover, as no other work does, the surface anatomy and its normal variations, of the whole body as it presents itself to the examining eye and finger. By his clear style and broad grasp and presentation, of what might seem a very dry subject, the author has made a very interesting as well as a valuable contribution to medical science. The internist, the neurologist, the pediatrist, the dermatologist and any other specialist will find the work of nearly the same interest and practical value as will the surgeon. The work is in a class by itself and merits the warmest commendation.

MYSTERIES OF LIFE SERIES. By Isabelle T. Smart, M.D., Medical Examiner of Defective Children, Department of Education, City of New York. Book 1: What a Mother Should Tell Her Little Girl. Pp. 105. Book 2: What a Mother Should Tell Her Daughter. Pp. 105. Book 3: What a Father Should Tell His Little Boy. Pp. 116. Book 4: What a Father Should Tell His Son. Pp. 103. Cloth. $2.50 per set; 75 cents per volume. New York: The Bodmer Publishing Co., 1911.

This series of four little books is another evidence of the awakening interest of the public in instruction along all lines which lead to better health conditions. The number of books recently published on sex hygiene is an evidence both of the need and of the demand for adequate instruction on this subject. The duty of the conscientious parent to afford some kind of knowledge to the growing child is evident. The question as to the form such instruction shall take should be determined in each case by the parent. The number of books available for this purpose is rapidly increasing and this set should be considered in selecting suitable material.

Medicolegal

Liability for Malpractice in Delivery with Instruments—Skill Required

(*Kline vs. Nicholson (Ia.), 130 N. W. R. 722.*)

The Supreme Court of Iowa in this case affirms a judgment for the defendant for $459 damages on a counterclaim for malpractice to the plaintiff's action for compensation. The court says that the allegations in the counterclaim of negligence submitted to the jury were that the plaintiff, in effecting the delivery of the defendant's wife during child labor, negligently used instruments; that in the negligent and unskilful use of the instruments he lacerated and wounded the defendant's wife; that he afterward treated such laceration in a negligent and unskilful manner; that in treating the wound he was so negligent and unskilful that he failed to properly dress the same, and that by such negligent and unskilful treatment the wound was prevented from healing.

There was evidence tending to show that the plaintiff used forceps in effecting delivery without waiting a sufficient time to see whether by his assistance delivery could not have been effected without the use of such an instrument, and that, as the use of instruments was more likely to result in rupture involving the danger of subsequent operations, the plaintiff proceeded in a negligent manner. The court is justified in construing the allegation as to negligent use of instruments when in the exercise of reasonable care and judgment they should not have been used as well as the use of instruments as and when they were used. If the defendant's testimony was to be believed, the plaintiff used defective instruments; that is, forceps tied together after they were adjusted on the head of the infant with a string, rag, or piece of silk, with the result that the fastening broke and allowed the forceps to pull loose, causing a rupture of the parts, when, if the forceps had been of a proper kind or properly fastened, such result would not have followed. The evidence tended to show that the plaintiff used an amount of force and violence in attempting to extricate the infant from its mother's womb which was unnecessary and improper, resulting in unnecessary injuries to the patient, including rupture of the perineum and sphincter muscle. The evidence also tended to show an improper method of treatment after the rupture occurred with the result that injury has not been entirely repaired. The court reaches the conclusion that, under the evidence, there was no error in submitting the question of the plaintiff's negligence to the jury, nor in submitting to them each of the allegations of negligence as they were submitted.

The contention for the plaintiff running through the various divisions of his argument relating to the sufficiency of the evidence seemed to be that if he, having the knowledge and skill required in the practice of his profession, erred only in his judgment as to whether instruments should not at the time have been used in effecting delivery and in the method of using instruments to effect delivery, he was not liable for the reason that his duty was only to exercise reasonable care and judgment. But it was still for the jury to say under proper instructions whether, conceding the plaintiff to possess the requisite knowledge and skill, he did in the particular case use the care and judgment which as such a physician he ought to have used. If he was careless or did not use the judgment which a competent physician would ordinarily use under the circumstances of the case, then he was liable in damages. These questions were to be determined, of course, in the light of expert evidence as to what a reasonable, judicious and careful physician would do under like circumstances; but it was for the jury to say whether, in the light of the expert evidence, the plaintiff did exercise the care, skill and judgment required.

In three different instructions the jury were told in effect that, if the plaintiff possessed and employed in the treatment of the defendant's wife such reasonable skill and diligence as were ordinarily exercised in his profession at and in localities similar to that in which he practiced, then he was not responsible for the result of the operation. That statement of law was in accordance with the decisions of this court. But in one instruction the law was thus stated: "Negligence in this case as applied to plaintiff consists in the doing by plaintiff, in the treatment of the defendant's wife, of some act that a physician and surgeon possessing and exercising the average skill and care of the medical profession in the vicinity of the defendant's residence would not ordinarily do under like circumstances." This the plaintiff complained of on the ground that by it he was required to possess and exercise the care and skill usually possessed and exercised in the vicinity of the defendant's residence, rather than that usually possessed and exercised in similar localities. It might be that under some circumstances the rule as thus stated would be erroneous and prejudicial. But, unless the jury might have been led to exact of the plaintiff a higher standard of skill and care than required in similar localities, then he could not possibly have been prejudiced by the instruction, and that did not appear in this case. As supporting the view that such an instruction as above quoted, though erroneous, may be non-prejudicial in a case where the physician is appealing from a judgment against him, see Dunbauld vs. Thompson, 109 Iowa, 199.

Contract of Physician for Part of Amount Recovered by Injured Person Not Valid

(*Sherman vs. Burton (Mich.), 130 N. W. R. 667.*)

The Supreme Court of Michigan holds invalid a contract made by the defendant with the plaintiff, a physician, whereby the former agreed to pay to the latter, for professional services, one-third of any sum which the former might receive from an electric railway company as damages, arising out of an injury, and further agreed to pay to the physician the sum of $90, in addition to said one-third, if the amount received was $2,000 or more, that is, if the settlement was made outside of courts. The court says it thinks that it necessarily followed from the circumstances of the case as disclosed and the agreement that the parties contemplated that the physician should be a witness in case of suit, and should give a history of, and opinion on, the case in the event of a proposed settlement. His interest in the amount of the damages furnished a powerful motive for exaggeration, suppression, and misrepresentation, a temptation to swell the damages so likely to color his testimony as to be inimical to the pure administration of justice, so that the agreement must be held void.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Bulletin of Johns Hopkins Hospital, Baltimore

August

1 *Studies on Peritoneal Adhesions with Contribution to Treatment of Denuded Bowel Surfaces. E. H. Richardson, Baltimore.
2 Primary Carcinoma of Pleura. T. P. Sprunt, Baltimore.
3 *Case of Puerperal Infection with Isolation from Uterus of B. Influenzæ and New Method for Making Blood Agar for Its Cultivation. W. Thalhimer, Charlottesville, Va.
4 *Hyperleukocytosis of High Grade in Bronchopneumonia in Child. C. R. Austrian, Baltimore.
5 Viability of Parasitic Ova in Two Per Cent. Formalin, with Especial Reference to Ascaris Lumbricoides. R. S. Morris, Baltimore.
6 Haven of Health. W. H. Bergtold, Denver.

1. **Peritoneal Adhesions.**—During the course of an operation for the relief of an enormous post-operative ventral hernia a situation arose which suggested to Richardson a new method of dealing with denuded bowel surfaces under certain conditions. After effecting the release of the intestine there remained two extensive raw areas, each measuring 2 to 3 inches in length, involving nearly one-half the circumference of the bowel, and separated from each other by 6 or 8 inches of practically normal intestine. The problem was practically solved by the accidental laceration and partial retraction of one leaflet of the mesenteric peritoneum just along its line of attachment to the bowel and adjacent to one of the raw areas on the surface of the latter, which occurred during its

separation from the hernial sac. There being a considerable deposit of fat between the two layers of mesenteric peritoneum, it was a simple and easy procedure to extend the separation of the torn leaflet and its attached fat in all directions from the underlying vessels and the opposite intact leaflet with its fat, thus obtaining a large, movable flap of normal peritoneum which was easily drawn up, without tension, spread out over the raw surface on the bowel, and tacked down with a few fine silk sutures. The result was satisfactory in every way. The patient's recovery was complete.

This experience led Richardson to investigate the idea further in order to determine accurately its limitations and to meet certain theoretical objections. His conclusions, based on such a study, are as follows: 1. The procedure is best applicable to that portion of the intestinal tract when, in such cases as the one described, present methods are inadequate, namely, from the upper jejunum to the lower ileum. It may be rationally applied, however, to any portion of the bowel possessing a mesentery of sufficient length to admit of its ready execution. 2. Care must be exercised at the duodenum, upper jejunum and lower ileum not to produce kinks of the bowel. 3. In cases exhibiting a scanty deposit of fat in the mesentery, plication is a rapid, safe and efficient substitute for separation of the two peritoneal leaves. 4. Aside from a slight spiral rotation, which in view of peristalsis and the mobility of the parts is entirely insufficient to produce obstruction, the procedure has no demonstrable effect on the bowel lumen. 5. It can safely be extended to include nearly one-half the circumference of the bowel and 3 to 4 inches in continuity. There is no apparent reason why it should not be repeated as often as necessary at different levels of the intestinal tract. 6. In view of the rich vascular anastomosis and the mobility of both the bowel and its mesentery, if care be exercised in placing the sutures so as to avoid the trunk vessels, the effect on the circulation is negligible. 7. Stability and permanence of the coaptation is readily secured through intelligent disposition of the sutures.

3. Puerperal Infection with Isolation from Uterus of B. Influenzæ.—A simple laboratory method for making a hemoglobin or blood medium capable of growing the *B. influenzæ*, is the following worked out by Thalhimer. Freshly-drawn beef blood obtained from an abattoir is collected in a wide-mouthed jar and defibrinated by shaking with a number of medium-sized marbles. This is laked by adding an equal part of distilled water and rendered free from bacteria by passing through a sterile Reichel filter as above. This yields a beautiful, clear, red fluid and 20 to 30 c.c. of this are added to 1 liter of sterile melted agar at 45 C. and poured into sterile tubes. The medium which results is also perfectly clear, bright red and of the same density of color as ordinary blood-agar. On this medium two organisms which were unsuccessfully tested on the hemoglobin agar, were successfully passed through ten subcultures by Thalhimer. The growth occurred in twenty-four hours, and was typical of the *B. influenzæ*, occurring in small, discrete, dewdrop colonies. Smears showed the typical morphology. Pneumococcus, streptococcus, *Streptococcus mucosus* and gonococcus also grew luxuriantly. This method is a modification of former methods, notably that of Pfeiffer, and is believed to be the simplest yet devised for making blood-agar. Its chief advantage over that of Pfeiffer is that the laking agent is one which does not interfere with growth of bacteria and does not have to be removed. From 40 to 50 c.c. of this laked blood can be filtered in twenty-four hours through a Reichel filter of 50 c.c. capacity. Should a larger quantity be needed a larger filter can be used. It is evident that the hemolytic qualities of an organism cannot be tested with this medium.

4. Hyperleukocytosis in Bronchopneumonia.—At the first count made by Austrian in this case the leukocytes numbered 130,000 per c.mm. Seven hours later, the leukocytes were 144,000 per c.mm.; on the following morning they had increased to 183,000 per c.mm. and that evening reached a maximum of 206,000 per c.mm. During the following four days they varied between 126,000 and 156,000, but with the onset of a mastoiditis again rose to 192,000 per c.mm.

Medical Fortnightly, St. Louis

August 10

7 Obstruction of the Male Urethra. H. J. Scherck, St. Louis.
8 Self-Limitation. D. L. Feld, Jeffersonville, Ind.
9 Pseudo-Hermaphroditism. H. J. Scherck, St. Louis.
10 Epidemic Influenza. T. G. Stephens, Sidney, Iowa.
11 Glaucoma. E. E. Clark, Danville, Ill.
12 Practical Comments. W. T. Marrs, Peoria Heights, Ill.

Archives of Diagnosis, New York

July

13 Diagnostics. G. K. Dickinson, Jersey City, N. J.
14 *Elevation of Temperature—An Early and Often Enduring Symptom of Hyperthyroidism. H. Stern, New York.
15 Complement-Fixation Test in Gonorrhea. G. K. Swinburne, New York.
16 Significance of the Wassermann Reaction in Gynecology and Obstetrics, Its Bearing on Question of Inheritance of Syphilis. A. Stein, New York.
17 Diagnosis, Etiology and Prognosis of Infantile Scurvy. E. M. Sill, New York.
18 Advances in Diagnostic Methods. J. H. Barach, Pittsburg, Pa.
19 *Differential Diagnosis Between True Tube-Casts and Pseudo-Casts in Urine. L. Heitzmann, New York.
20 Cystinuria. F. E. Sondern, New York.
21 Sources of Error in Diagnosis in Senile Cases. I. L. Nascher, New York.
22 Tuberculosis of the Spine; Diagnosis and Differential Diagnosis. I. D. Steinhardt, New York.
23 *Tuberculosis of the Mucosa of the Hard Palate. E. W. Dittrich, New York.
24 Diagnosis and Prognosis of Epidemic Infantile Paralysis. E. M. Sill, New York.

14. Hyperthyroidism.—There is no doubt at all in Stern's mind that many cases which, in a slipshod manner, are designated as neurasthenia or hysteria, are expressions of acute or chronic thyrotoxicoses. He says that a minor case of hysteria and an early or mild thyrotoxic state have many symptoms in common. Some of the rarer hysterical phenomena, as hysterical fever, or hysterical tremor together with accelerated cardiac activity, clinically viewed, appear to be the immediate result of hyperthyroidism. Elevation of temperature is one of the early, if not the earliest, objective symptoms of many instances of hyperthyroidism. It seems to be a much more constant manifestation in the mild than in the more pronounced instances of the affection. In many cases the mouth temperature is raised but 1 degree, or a fraction thereof; in others the increase amounts to 2 or even 3 degrees. In some cases the temperature fluctuates, with occasional intermissions, between 99 and 99.4 F. for months and even years; in others, the slightest exertion or excitement drives it up from 99 to 100 F., or thereabouts. In a majority of instances the lowest temperature is recorded after a night's rest; continued rest in bed will occasionally reduce the temperature to normal for a brief period. The usual discrepancy of about ½ degree F. between the mouth and rectal temperatures does not exist in all cases; in some cases the discrepancy is less than 0.3 degree, and in a few there does not seem to prevail any discrepancy at all. Tyrotoxic temperature elevation never reaches the extreme height of hysterical fever, but it is enduring for a longer period. While there generally ensues a rapid decline of hysterical pyrexia, the slight thyrotoxic temperature increase abates slowly, as a rule. Like the fever of hysteria, however, that of hyperthyroidism may start abruptly, and like the former it is liable to appear, or to become augmented, in the wake of any exertion or excitement. Hysterical pyrexia may be differentiated from thyrotoxic temperature elevation by the following three main factors, viz.: Hysterical fever does not, as a rule, concur with physical decline and emaciation, thyrotoxic temperature elevation usually does; the urine in instances of hysteric fever exhibits a small urea and phosphoric acid quotient, whereas in the presence of hyperthyroidism it is increased; hysteric pyrexia is usually not influenced by the administration of preparations of thyroid or iodin, while these drugs are liable to prolong or aggravate the thyrotoxic fever.

19. Tube-Casts and Pseudo-Casts.—Heitzmann emphasizes that a diagnosis of the presence of true tubular casts in the urine should under no circumstances be based on the findings of cast-like structures alone. Such structures must always be associated with other evidences of a pathologic condition, such as red blood-corpuscles, leukocytes or pus corpuscles and epithelia from the uriniferous tubules, before the diagnosis of a tube cast becomes admissible.

23. **Tuberculosis of Mucosa of Hard Palate.**—A man suffering from a pronounced pulmonary tuberculosis about two years ago noticed a small red spot on the right side of the palate about ¼ inch behind the posterior border of the palate. It increased somewhat in size, was extraordinarily painful and refused to heal after becoming ulcerated. He consulted a physician who, after treating it for a while, told him that he could not do any more for him. Another colleague cauterized it with nitric acid. It disappeared after being treated for some time. About four months ago it reappeared, spreading rapidly; it was then that he consulted Dittrich. During all this time he felt good and worked every day. He showed the following condition: On either side of the median line there were aggregations of small papules of the size of pin heads which were somewhat acuminate, only little inflamed, did not bleed on touch, and were separated by a deep median furrow. They were more marked on the right than on the left side. The lesions were sharply defined anteriorly and merged into the tissues posteriorly with but very slight inflammatory reaction. Behind the anterior border there was an ulceration on either side of the furrow; the one on the left was the larger in size. These ulcerations were triangular in shape, had irregular margins, were superficial and spreading peripherally. Their bases were red, painful and slightly bleeding on touch and were very little indurated, with margins that were only moderately inflamed and covered with a dirty grayish material. They were first touched with 25 per cent. lactic acid, but when this failed to make an impression, 95 per cent. phenol (carbolic acid) was resorted to. While the right ulceration responded to the application of phenol and disappeared soon, the left one showed a decided tendency to spread and proved to be very recalcitrant. The ulcers finally disappeared leaving very little scar tissue and a somewhat tunicated condition of the mucous membrane, the papular, i. e., tubercular condition, spread laterally, at last almost touching the alveolar processes. The microscope showed the following: the epithelium presented a moderate amount of edema. In the connective tissue directly beneath the epithelium were distinct, isolated collections of small, round cells, in the center of which giant cells were discerned.

Lancet-Clinic, Cincinnati

August 12

25 Health Conservation of Policy-Holders. D. Lewis, Chicago.
26 Hypertrophy of the Prostate. J. E. Cannaday, Charleston, W. Va.
27 Icterus Neonatorum. D. Millikin, Hamilton, Ohio.
28 Flap Splitting in Cleft Palate Operations. J. F. Baldwin, Columbus, Ohio.
29 A New Departure. J. H. Landis, Cincinnati.

Annals of Surgery, Philadelphia

August

30 Case of Bilateral Temporomaxillary Ankylosis with Original Method for Approaching the Temporomaxillary Articulation. H. Lilienthal, New York.
31 Variations in the Anatomy of the Naso-Lachrymal Passages. J. P. Schaeffer, Ithaca, N. Y.
32 Nerve Supply of the Anterior Abdominal Wall and Its Surgical Importance. J. P. Hoguet, New York.
33 Apparatus Designed to Facilitate Pelvic Surgery by Approximating the Abdominal Wound to the Depth of the Pelvis. W. H. Taylor, Port Arthur, Ontario.
34 *Penetrating Wounds of the Abdomen. J. R. B. Branch, Macon, Ga.
35 Congenital Hypertrophic Stenosis of the Pylorus. R. Coombe, London.
36 Simplified Gastro-Enterostomy Clamp. W. Bartlett, St. Louis.
37 Pathology and Symptomatology of Cholelithiasis. A. J. Walton, Greenwich.
38 Double Gall-Bladder Removed by Operation. J. Sherren, London.
39 Primary Ovarian Pregnancy. C. F. Kivlin, Troy, N. Y.
40 *Treatment of Tumors of the Urinary Bladder with the Oudin High-Frequency Current. E. Beer, New York.
41 Approximation of the Ends of Fragments in Fractures with Contraction of Attached Muscles. P. B. Magnuson, Chicago.
42 Simple Fracture of the Pisiform Bone. R. B. Deane, Calgary, Canada.
43 Germicidal and Osmotic Actions of Picric Acid. O. W. H. Mitchell, Columbia, Mo.

34. Abstracted in THE JOURNAL, May 27, 1911, p. 1603.

40. **Oudin Current for Bladder Tumors.**—Beer has treated successfully up to date five cases of primary papillary tumors of the bladder, aggregating nine distinct tumors, with this new method. In addition he has treated two cases of recurrent papillary tumor of the bladder. One patient is still under treatment, and a large part of the very extensive growth has been thrown off. The original tumor was excised some years ago and was diagnosed as carcinoma by a competent pathologist. The other recurrent case could not be treated adequately, as the old suprapubic wound opened up and the patient gradually developed a fatal renal insufficiency. As the result of one treatment in this case, larger pieces of the papillary growth sloughed away, as in all the other cases. In two undoubted cases of carcinoma of the non-papillary type results were negative. Beer introduced the Oudin current through a catheterizing cystoscope. In the case of a patient 81 years old the condition was considered inoperable. The large papillary growth made up of three confluent tumors surrounded the right ureter. To remove the growth and reimplant the ureter would have been too severe a strain for this anemic old woman. In eight seances aggregating thirteen and a fourth minutes' application of the Oudin current, the tumor was painlessly destroyed and the patient has been completely restored to health. There is no sign of recurrence. In a second case there was a fair-sized sessile growth which was bleeding very actively. The very first application and the very first treatment controlled this, so that the urine was absolutely clear twelve hours after the treatment and has remained so ever since. There is no sign of recurrence.

Journal of Arkansas Medical Society, Little Rock

June

44 Family Physician, Then and Now. T. F. Kittrell, Texarkana.
45 Progress in Dermatology and Syphilology. S. E. Steer, Hot Springs.

Medical Herald, Kansas City

August

46 *Tuberculosis Treated with Carl Spengler's Tuberculosis Immune Blood. G. N. Ryan, Des Moines, Iowa.
47 Congenital Cystic Kidney. W. J. Frick, Kansas City.
48 *Care of the Hypertrophied Prostate. F. H. Clark, El Reno, Okla.

46. **I. K. (Spengler) Treatment of Tuberculosis.**—Very satisfactory results have been obtained from this method of treatment by Ryan. He reports forty-three cases.

48. Abstracted in THE JOURNAL, April 15, 1911, p. 1142.

West Virginia Medical Journal, Wheeling

August

49 Cancer of Uterus. O. F. Covert, Moundsville.
50 Surgery of the Tonsil. F. L. Hupp, Wheeling.
51 Local Anesthesia in Throat Operations. H. Lesieur, Chicago.
52 Skin Antisepsis. R. J. Hersey, Wheeling.
53 Ethical Hints. W. E. Neal, Huntington.
54 Dechlorination Cure. J. M. Lovett, Huntington.

Journal of Cutaneous Diseases, New York

August

55 *Etiology of Lupus Erythematosus. D. Friedlander, San Francisco.
56 St. Louis Museum for Diseases of the Skin. D. W. Montgomery, San Francisco.
57 Relationship of Vaccine Therapy to Treatment of Certain Diseases of the Skin. D. K. Smith, Toronto, Canada.

55. **Lupus Erythematosus.**—That the disease is not tuberculous *per se*, is evident to Friedlander, but the question as to whether it is due to a tuberculous or other toxin, he says, is not so clear. Probably the truth lies somewhere between the two extremes; that is to say, that the disease is caused by a toxin, carried by the blood, as evidenced by the fact that the blood-vessels are the first structures to be affected, and while tuberculosis or a tuberculous inheritance may predispose to lupus erythematosus by lowering the general resistance, it is certainly more of a predisposing than a causative factor. That it is a constitutional affection is clearly shown in those cases which pass over into the acute fulminating type, in which the patient shows all the symptoms of a profound toxemia with involvement of various internal organs, especially the kidneys; but the cause of the toxemia cannot be laid to any single toxin. That feeble or deranged circulation, trauma and irritation, are factors in the causation of this affection is also evident, but whether the toxemia precedes the local irritation and the external lesion is the exciting factor, or whether the skin damage by the external lesion presents less resistance than the remaining cutaneous envelope to the circulating factor, is a question to be determined.

Southern Medical Journal, Nashville

August

58 Treatment of Pellagra. C. C. Bass, New Orleans, La.
59 *Typhoid, with Case of Double Perforation. H. M. Folkes, Biloxi, Miss.
60 Tuberculosis. F. G. Rutherford, Mobile, Ala.
61 *Surgical After-Treatment of Anterior Poliomyelitis. R. C. Turck, Jacksonville, Fla.
62 *Surgical Treatment of Hepatic Cirrhosis. A. A. Herold, Shreveport, La.
63 Case of Gunshot Wound of Abdomen and Chest, Penetrating Stomach, Liver and Lung. F. G. Dubose, Selma, Ala.
64 *Review of Fifty-Eight Consecutive Operations for Fibroid Tumors of the Uterus. E. G. Jones, Atlanta, Ga.
65 Surgery of the Ovaries. J. A. Crisler, Memphis, Tenn.
66 The Eye, and Its Relation to Medical Inspection of Schools. F. P. Hoover, Jacksonville, Fla.
67 Treatment of Wounds, Surgical Dressings and Applications. L. Sexton, New Orleans, La.
68 *Episcleritis. O. Dulaney, Dyersburg, Tenn.
69 The American Medical Association: Its Organization, Its Policies and the Present Status of Its Work. M. Rogers, Birmingham, Ala.
70 Relation of Physicians to Life Insurance. W. D. Jelks, Birmingham, Ala.

59 and 62. Abstracted in THE JOURNAL, Dec. 3, 1910, pp. 2006 and 2007.

61. Abstracted in THE JOURNAL, June 17, 1911, p. 1841.

64. Abstracted in THE JOURNAL, May 27, 1911, p. 1603.

68. Abstracted in THE JOURNAL, Nov. 26, 1910, p. 1920.

Journal of Medical Society of New Jersey, Orange

August

71 Our Profession: The Progressive Changes of Forty Years. E. Hollingshead, Pemberton.
72 *Chronic Gastritis of Secondary Origin Presenting the Phenomenon of Achlorhydria Hemorrhagica Gastrica. J. T. Pilcher, Brooklyn, N. Y.
73 Poliomyelitis Anterior. G. E. Day, Collingswood.
74 Hospitals, Their Use and Abuse from General Practitioner's Viewpoint. A. Marcy, Riverton.
75 Certain Medicinal Agents: Their Value, Potency and Danger. J. J. Hering, Tenafly.

72. Abstracted in THE JOURNAL, July 22, 1911, p. 306.

Journal of Experimental Medicine, New York

August

76 *Method for Pure Cultivation of Treponema Pallidum (Spirochæta Pallida). H. Noguchi, New York City.
77 *Phagocytic Immunity in Pneumococcus Infections, and in Pneumonia with Relation to the Crisis. S. Strouse, Chicago.
78 *Infection of Rabbits with the Virus of Poliomyelitis. H. K. Marks, New York City.
79 *Ultimate Result of a Double Nephrectomy and the Replantation of One Kidney. A. Carrel, New York City.
80 *Patching of the Abdominal Aorta with Piece of Rubber. A. Carrel, New York City.
81 Cultivation of Tissue in Plasma from Alien Species. R. A. Lambert and F. M. Hanes, New York City.
82 *Studies on Immunity in Cancers of the White Rat. I. Levin, New York City.
83 Mechanism of the Formation of Metastases in Malignant Tumors. I. Levin and J. Sittenfield, New York.
84 Experimental Obstructive Jaundice. J. H. King, J. E. Bigelow and L. Pearce, Baltimore.
85 Formation of Precipitates in the Blood in Vitro by Acid Salvarsan Solutions. D. R. Joseph, New York City.
86 Experimental Immunity with Reference to Bacillus of Leprosy. C. W. Duval and F. B. Gurd, New Orleans.
87 Further Observations on Certain Features of Experimental Syphilis and Yaws in the Rabbit. H. J. Nichols, U. S. Army.

76. Pure Cultivation of Treponema Pallidum.—Noguchi reports the positive reproduction of syphilitic lesions in rabbits by means of pure cultures of *Treponema pallidum*. He employed the spirochete-containing testicular tissue of rabbits which had been inoculated with human syphilitic material for the purpose of cultivating the pallidum. The culture medium used was a serum water (sheep, horse, rabbit) to which a piece of sterile rabbit tissue is added. The rabbit tissues best adapted to this purpose are the kidney and testicle. The heart muscle is also good, but liver is unsuitable, since it is not only difficult to obtain in a sterile condition, but even when sterile, supplies enough carbohydrates to render the medium strongly acid in cases in which certain bacteria are simultaneously cultivated. Strict anaerobic conditions are very important in obtaining the first generation of pallida. To obtain the first generation of the *Treponema pallidum* in virulent form, the following conditions are essential: (1) the presence of suitable fresh sterile tissue in serum water; (2) strict anaerobiosis; (3) a slightly alkaline reaction as furnished by the serum and tissue, and (4) a temperature of about 35 to 37 C. The presence of agar or gelatin seems to interfere with the successful growth of the first generation of the spirochetes. On the other hand, when once adapted to the artificial serum-water tissue medium, the pallidum grows well under less strictly anaerobic conditions. In fact, certain strains even grow well in a medium containing agar, provided that suitable fresh tissue is placed low down in a high column of medium (serum-water or serum-agar), and that it is covered with paraffin oil. Certain pallidum strains refuse to grow in a solid medium for several generations, and none of Noguchi's pallidum strains grew in any medium without the presence of tissue. Thus all the pure pallidum strains are being cultivated in a tissue-containing medium. Out of ten strains of *Treponema pallidum*, six have been cultivated in the serum-water tissue medium. Except in one instance, the pallidum has grown together with other bacteria. So far only two strains of pure cultures have been carefully tested for their virulence. Both strains have produced typical lesions in the testicle of the rabbit.

77. Phagocytic Immunity in Pneumococcus Infections.—Strouse endeavored to show through animal experiments, that phagocytic immunity is to a high degree specific for the organism used in immunization, and that the amount of opsonin produced in the process depends to a great extent on the virulence of the organism. The negative results obtained with post-critical sera do not mean that opsonins may not be present (five positive cases indicated their presence), but they emphasize strongly the fact that they are not formed to any great extent. Therefore, this study adds further support to the view that although opsonic immunity is produced in pneumonia, it is not the only means of defense possessed by the body, and by itself it cannot explain the crisis.

78. Infection of Rabbits with Virus of Poliomyelitis.—The experimental results obtained by Marks would, it seems, leave no doubt that the virus of poliomyelitis can be propagated in certain individual rabbits, at least through a limited series of inoculations. They also show that the virus is not confined to the central nervous system in these animals, but occurs, perhaps in equal amount, in other organs—certainly in the liver and spleen.

79. Double Nephrectomy and Replantation of One Kidney.—A dog, after having undergone a double nephrectomy and the replantation of one kidney lived in excellent health for almost two and a half years. She died of an intercurrent disease which was without relation to the operation. The autopsy showed the kidney to be normal. Hence Carrel says the experiment proves definitely that the extirpation of the kidney in the dog, its perfusion with Locke's solution, the complete interruption of its circulation for fifty minutes, and the suture of its vessels and ureter do not interfere with its functions, even after a long period of time, and it indicates that from a purely surgical standpoint, the grafting of organs is a real possibility.

80. Patching of Abdominal Aorta with Rubber.—In two recent experiments Carrel attempted to patch an artery with inorganic and organic foreign substances in order to ascertain whether they can be used in the reparation or in the permanent intubation of large vessels. Under ether anesthesia a segment of glass tubing, about five centimeters long, coated with paraffin was introduced into the abdominal aorta of a dog. The pulsations of the femoral arteries remained normal. Six days after the operation, the animal was allowed to run. Paralysis of the posterior limbs developed and the pulsation of the femoral arteries disappeared. It was thought that the glass tubing had been displaced by the movements of the animal and that coagulation had occurred. Laparotomy was performed, the tube extirpated, and the aortic circulation reestablished. The glass tubing was obliterated by a soft clot of recent formation. But it was found that the glass wall, inside of which circulation had taken place for six days, was covered by a thin, whitish membrane. A tube having the appearance of a thin-walled artery could be extracted from the glass tubing. Microscopic examination showed that it was composed of a dense fibrin infiltrated by many leukocytes. Carrel thinks it is probable that if the dog had been quiet and the glass tubing had not been displaced, the fibrinous

tube would have become organized and would have formed inside of the glass tubing a new intima, in the manner of the canalization of a dissecting aneurism. In the second experiment, a piece of the anterior wall of the abdominal aorta was resected and replaced by a piece of rubber.

Experiment.—A medium-sized male dog. Feb. 7, 1910, 9:45 a. m., under ether anesthesia, transversal laparotomy; intestines wrapped in greased silk towels and a wool blanket. 10:05 a. m., dissection of the abdominal aorta below the renal arteries. Interruption of the circulation by two Crile forceps placed about 4 cm. from each other. Resection of a small piece of the anterior wall of the aorta. The opening was about 20 mm. long and 12 mm. wide. It was patched by a piece of thin rubber. At 10:36 a. m., the circulation was reestablished. There is some leakage at the line of suture, which is easily controlled by a few stitches. The abdomen is closed and the operation completed by 11:00 a. m. After the operation, there was no modification of the femoral pulse, and the animal remained in excellent health. May 26, 1911, the femoral pulse and the aortic pulsations were normal. There was a slight thickening of the anterior wall at the level of the patching, and the artery adhered to the thoracic duct. About fifteen months later the aortic segment bearing the rubber patch was extirpated and examined. The lumen of the vessel was normal; the wall was thickened. On the external side of the aorta there was no evidence of the patch, and the adventitia was thicker than normally. The intima was smooth and glistening. The piece of rubber was present in the wall. On its external side, a new adventitia had developed, while its internal side was covered by a thick layer of internal tissue. The experiment indicates, therefore, that a foreign inert substance, under certain conditions, does not produce an obliterative thrombosis, but can, indeed, be used in the reparation of the wall of a large artery.

82. **Immunity in Cancers of White Rat.**—Levin concludes that immunity to cancer growth is due to an active inhibitory influence of some substance present in the body fluids of the immune host, and not to any purely cellular activity. Immunity to growth of cancer must be very similar to, though not identical with, immunity in bacterial disease.

Mississippi Medical Monthly, Vicksburg

August

88 *Inguinal Hernia. J. Darrington, Yazoo City.
89 *Conservative Treatment for Advanced Cases of Carcinoma of Uterus. J. W. Barksdale, Winona.
90 *Diagnosis and Treatment of Chronic Affections of the Hip. W. C. Campbell, Memphis, Tenn.
91 *Some Unavoidable Postoperative Complications. J. A. Crisler, Memphis, Tenn.
92 *Some Unusual Symptoms in Malaria. B. F. McNeal, Ezra.

88, 89, 90, 91 and 92. Abstracted in THE JOURNAL, May 27, 1911, pp. 1611 and 1612.

American Journal of Obstetrics and Diseases of Women and Children, New York

August

93 Physical, Mental and Social Hygiene of the Growing Girl. J. R. Goffe, New York.
94 Dysmenorrhea Relieved by Nasal Treatment. J. Brettauer, New York.
95 *Malformation of the Female Genitalia. C. B. Miller, Washington, D. C.
96 Duties of the Gynecologist in Relation to the State Control of Vice. J. Milton Mabbott, New York.
97 Successive Tubal Pregnancies. M. Rabinovits, New York.
98 Case of Hypernephroma. G. T. Vaughan, Washington, D. C.
99 *Case of Eclampsia. D. W. Prentiss, Washington, D. C.
100 *Abstraction of Calcium Salts During Pregnancy. J. G. Drennan, Arrochar, N. Y.
101 *Shock in Eclampsia. H. C. Bailey, New York.
102 *The Plaster Lace. H. Grad, New York.
103 *Double Dermoids and Pregnancy. W. P. Manton, Detroit.

95. **Malformations of Female Genitalia.**—In one case cited by Miller the malformation was a typical one of bicornuate uterus in which the septum had extended not only between the uterine chambers, but had also divided the vagina into two halves. A second case was one of congenital absence of uterus and vagina. Immediately below the external inguinal ring in the upper portion of the labium majus on each side was a small oval body the size of an ovary. These bodies were sensitive to pressure, but did not swell periodically and were not the seat of pain except on pressure. The inguinal canals were not patulous and there was no impulse on coughing. Miller took these bodies to be misplaced mal-developed ovaries. The case was apparently one of congenital absence of vulva, vagina, uterus and tubes, with misplaced rudimentary ovaries. The third case was one of pyocolpos due to atresia of the hymen. The fourth case was one of congenital atresia of the vagina and external os uteri. All of these patients were of the white race. Miller has seen only one congenital malformation in the negro race and that was of a minor character. It was a transverse septum not complete about halfway up the vagina.

99. **Eclampsia.**—In Prentiss' case there was a preeclamptic toxemia and postpartum eclampsia, the patient having one convulsion the day after delivery.

100. **Abstraction of Calcium Salts.**—Drennan says that if the abstraction of calcium salts from the mother's blood by the fetus is the cause of puerperal eclampsia in the former, then the eclamptic mother should not nurse her infant.

101. **Shock in Eclampsia.**—Bailey records certain observations made on six eclamptic and preeclamptic cases with special regard to the shock attendant on delivery and the shock caused by drugs used for the rapid reduction of blood-pressure. He found that rapid emptying of the uterus in eclampsia frequently produces a decrease in blood-pressure amounting to 100 mm. of Hg, causing a condition of collapse or shock. Veratrum viride given to its full physiologic effect may cause a drop of 145 mm. of Hg. in the blood-pressure, producing shock. The administration of veratrum viride combined with emptying the uterus in eclampsia may produce such profound shock that the patient cannot recover. While it is probable that the high blood-pressure of eclampsia is one of Nature's protective mechanisms, still if it is deemed advisable to lower it, nitroglycerin and erythrol tetranitrate should be used for their action is on the peripheral vessels and not on the medullary centers. One of the best means of temporarily lowering blood-pressure in antepartum or intrapartum eclampsia is the emptying of the uterus. The blood-pressure observations in Bailey's cases showed a marked hypotension immediately after delivery, and if it is deemed desirable to lower the blood-pressure in this disease, Bailey says, the best method would be the delivery of the child, but the question comes up as to the advisability of reducing blood-pressure in these cases. The system is nearly overcome by the circulation of some toxin or toxins and it is an open question as to whether the rise in blood-pressure is not one of Nature's protective mechanisms. If the blood-pressure is to be lowered why not dilate the splanchnic area without depressing the medullary centers. Dilation of this area is accomplished by an anemia of the brain which would be very desirable. Nitroglycerin, in 1/50 gr. dose, will depress the blood-pressure 11 to 14 per cent. within five minutes when given by mouth and action begins to take place within two minutes. Together with the nitroglycerin, 2 gr. of erythrol tetranitrate should be given because its action begins when the nitroglycerin action wanes and the depression of the blood-pressure is continued for about three hours. These drugs are especially active in high blood-pressure, and a single dose of each of them would bring the high pressure seen in these cases well within the limits of safety.

102. **Plaster Lace.**—Grad's method consists in coaptating the skin incision by lacing instead of suturing. To prepare the plaster lace two pieces of Z. O. adhesive plaster, 6 by 8 inches long, are pasted on a glass bottle 4 inches in diameter. Hooks used by dressmakers are then sewed to the edge of the plaster 1 inch apart. The flask with the plaster attached is then wrapped up securely and sterilized in a steam sterilizer. After the sterilization the plaster is ready for use. To facilitate the removal of the plaster, hot water is poured into the bottle, when the plaster can be stripped off from the glass easily. After the peritoneum and fascia are closed, the wound is dried and all bleeding stopped. The skin for 8 to 10 inches on either side of the wound is dried with ether. The plaster is then placed so that the hooks are an inch away from the edge of the skin incision and is made to adhere firmly to the

integument. With a suitable piece of sterile tape the lacing is begun in the center of the wound, as it is easier to close the wound smoothly if the lacing is begun in the center. The tension is adjusted so as to bring the edges of the wound in apposition, care being taken not to allow the edge of the skin to fold under or to overlap. The wound is then dried and a suitable dressing applied. Twenty-four hours later the wound should be inspected and the dressing changed, as it will be found that the gauze next to the skin is soiled by the drainage from the wound. The plaster lace is allowed to remain on the skin for some ten to twelve days, and in the meanwhile the wound can be inspected as often as may be desired. By the use of this method of closure the incision remains uncovered and admits of inspection at any time. The coaptation of the wound is under absolute control, as the tension of the wound can be regulated to a nicety. The scar is threadlike. There is no skin suturing and consequently no stitch abscesses.

103. Abstracted in THE JOURNAL, June 24, 1911, p. 1912.

St. Paul Medical Journal, St. Paul

August

104 Value of the Periodic Holiday. J. Knott, Dublin, Ireland.
105 Extraction of Lens in Its Capsule. Smith Operation. J. C. Harding, St. Paul.
106 The Undeveloped Field in the Life Insurance Business. H. J. Messenger.

Colorado Medicine, Denver

August

107 Laboratory Methods Adapted to Country Practice. C. N. Needham, Grand Junction, Colo.
108 Cerebellar Abscess of Otitic Origin. F. R. Spencer, Boulder, Colo.
109 *Narcotic Addiction and Its Treatment. E. W. Knowles, Greeley, Colo.
110 Case of Rheumatoid Arthritis of Almost Undoubted Syphilitic Origin. L. W. Ely, Denver.

109. **Narcotic Addiction.**—The following treatment has been used by Knowles for several years with good results: when the patient comes for treatment he is required to give up what morphin or other drugs he has with him, and he is given whatever drug he may need to make him comfortable during the first or primary stage. When the second or active stage is begun, the drug is withdrawn at once. On admission give one tablet of the following formula, at two-hour intervals until five are taken:

℞	Gm. or c.c.	
Hydrargyri chloridi mitis	.13	gr.ii
Podophylli	.01	gr.1/6
Phenolphthalein	.06	gr.i
Atropinæ sulphatis	.0003	gr.1/200
Strychninæ nitratis	.0017	gr.1/40

Three hours after the last tablet has been taken give 5 ounces of a saturated solution of magnesium sulphate, or 3 ounces of castor oil. If the bowels do not move freely within two hours, repeat the dose. This Knowles has not found necessary unless the patient had loaded up on morphin before coming in. A high enema should be given a short time before starting the active treatment. It is absolutely necessary for the bowels to respond freely at this time. The treatment is discontinued until they do. Purging does these patients good instead of harm. During this stage no food is to be given until the bowels have been thoroughly emptied. After this a full tray may be given, and when this has digested the patient is ready for the active treatment.

From now on, Knowles says, the patient should be in bed, and the narcotic should be withdrawn. Give the patient hypodermically 8 drops of the following solution:

℞	Gm. or c.c.	
Hyoscinæ hydrobromatis	.013	gr.1/5
Pilocarpinæ nitratis	.12	gr.ii
Strychninæ nitratis	.013	gr.1/5
Aquæ	16	3iv

Repeat the dose at half-hour intervals until the patient is asleep. This usually requires from two to three doses. On awakening repeat the dose, no matter how comfortable the patient feels. From now on govern the dose and time of giving by the patient's condition. Give enough to keep him asleep or quiet, or in a mild belladona intoxication. If this condition be kept up there is no suffering. The dose may have to be increased to 10, 12 or 15 drops, and the interval will vary from two to five hours. Never after the first sleep is it necessary to repeat the dose oftener than every two hours.

When the sleep becomes natural, and no nervousness, jerking or twitching of the muscles is present, the medicine may be stopped. This will require from sixty to ninety-six hours, depending on the condition, the daily dose and the duration of the addiction. Another important sign is that the patient acquires a tolerance for the prescription with the passing of the withdrawal symptoms. Green stools should appear at this time. When the patient awakens from his first sleep, which is from three to five hours after the hypodermic has taken effect, give 1 grain of calomel every three hours until 8 grains are taken, and at the end of the thirtieth hour give 3 ounces of castor oil or 5 ounces of a saturated solution of sulphate of magnesia, and repeat in two hours if free action is not obtained. At the end of the fifty-sixth hour repeat the dose of oil. When this acts the green stools should appear. If it be found necessary to continue the treatment beyond the seventy-second hour, give a like dose of oil or saline. It is important that the bowels move and move freely at these intervals. If this treatment be carried out to the letter, the patient should sleep through the entire time, only awakening to go to the toilet, or for his bath or to be given food.

Milk or other liquid food should be given at regular intervals during the entire active stage. Acids should be avoided as the stomach shows a hyperacidity. It is an excellent plan after the first twenty-four hours to give sodium bicarbonate every four hours, especially if there is a tendency to vomit. Hot tub baths are given every morning, followed by an alcohol rub. Hot packs may be given to the strong and robust to help elimination. When the habit is once broken, the return to health is rapid and sure, and an otherwise healthy patient is able to resume his ordinary vocation. The after-treatment with a great many consists of attention to the bowels, good nourishing food, moderate exercise and plenty of sleep. Do not give alcoholic stimulants, for the administration of stimulants is always followed by a depression, which gives rise to a desire for another dose of the stimulant.

Bulletin of the American Academy of Medicine, Easton, Pa.

August

111 *Latest Improvement in Medical Education—Prevention. C. S. Sheldon, Madison, Wis.
112 The Medical Profession and Community Social Work. F. Almy, Buffalo.
113 Possibilities of Social Service Open to Hospitals and Dispensaries. J. R. Shillady, Buffalo.
114 Social Service in the Work of a Hospital for the Insane. A. W. Hurd, Buffalo.
115 Potential Educational Influence of Hospitals. I. S. Wile, New York.

111. Abstracted in THE JOURNAL, July 22, 1911, p. 311.

Texas State Journal of Medicine, Fort Worth

August

116 Goiter and Its Surgical Treatment. C. H. Harris, Fort Worth.
117 Clinical-Pathology and Surgical Phases of Goiter. W. D. Haggard, Nashville, Tenn.
118 *Simple and Safe Method for Performance of Partial Thyroidectomy. L. Freeman, Denver, Colo.

118. **Partial Thyroidectomy.**—In Freeman's method the gland is exposed through an ordinary collar incision, and the lobe to be removed is dislocated. In the average case there is but little hemorrhage or risk of any kind. Two pieces of wire are then cut, some inches longer than the length of the thyroid. Several loops (usually three) of strong, heavy catgut are next passed directly through the lobe, near the base, from one side to the other—one near each end, and one or more between these, according to the size of the gland. The loops are most conveniently inserted by plunging alligator forceps through the thyroid substance and grasping a strand of gut by its center; although a blunt needle, threaded with both ends of the loop, may be employed instead. A wire is then placed longitudinally along each side of the base of the lobe, passing through the loops on one side and between their free ends on the other. These are held at each end by the fingers of an assistant, thus firmly compressing the glandular substance while the free ends of the loops are being tied firmly over their corresponding wire. Additional

security may be obtained at each extremity by taking a turn around the projecting portions of the wires with the remaining ends of the loops after the first knots are tied. In some cases, especially when the goiter is a large one, the loops may be made double, thus increasing their holding power. When the wires are once in position they cannot slip or become displaced in any way because they are securely held by the catgut loops passing through both glandular substance and capsule. Their pressure is great enough, when properly applied, to check the circulation, so that the gland may be shaved off beyond them like a piece of cheese, without the slightest hemorrhage and with a satisfying sense of security. A small margin should be left, as a support for the wires and sutures.

The glandular stump is now replaced in its original position by the side of the trachea, the upward projecting ends of the wires being previously removed with wire-cutters. When necessary, the long ends of the wires, projecting downwards, are then bent forwards by means of pliers, in order that they may pass easily through the wound and over the upper end of the sternum without pressure on the skin. The various tissues are now united over the thyroid stump, the ends of the wires passing through the center of the skin wound, between the stitches and down over the sternum. They must be long enough to prevent the possibility of slipping beneath the skin, and, as a further precaution, their ends can be bent into a loop, through which a small strip of gauze may be pulled.

In applying the dressings a layer of gauze is placed beneath the wires in order to protect the skin. Other drainage than that afforded by the wires is unnecessary.

In a few days the wires become loosened, through absorption of the catgut and shrinkage of the compressed tissues, when they can easily be pulled out, the small opening through which they emerged soon closing spontaneously. They produce no particular discomfort, the patient being able to get up and walk about as freely as if ordinary drainage tubes had been employed.

The advantages of the method are said to be: (1) It is easily and quickly done. (2) The control of hemorrhage is complete. (3) There is no danger of injuring the recurrent laryngeal nerves or the parathyroid bodies. (4) There is reason to think that the uniform pressure may prevent the exudation of glandular secretion, a point of some importance in exophthalmic goiter. (5) Any desired amount of glandular substance can be excised from one or both sides, without danger of removing or leaving too much. (6) The wires do not crush the tissues—they simply compress them enough to control hemorrhage and stop the exudation of glandular secretion.

Military Surgeon, Washington

August

119 Influence of Rice Diet and Inanition on Production of Multiple Neuritis of Fowls and Its Bearing on Etiology of Beriberi. W. P. Chamberlain, H. D. Bloombergh and E. D. Kilbourne, U. S. Army.
120 The Army Hospital Corps: How Can Its Efficiency be Increased? G. M. Ekwurzel, U. S. Army.
121 Wassermann Reaction in Syphilis, Leprosy and Yaws. H. D. Bloombergh, U. S. Army.
122 Sick Report and Efficiency of the Army. Caduceus.
123 Report of Sanitary Conditions at Maneuver Camp, San Antonio, Texas. F. W. Foxworthy.
124 Duties of the Executive Surgeon of a Naval Hospital. E. H. Green, U. S. Navy.
125 The Antiseptic Value of Iodin in Surgery. J. S. Neate, Washington, D. C.
126 Report on Low Country Fever Diagnosed as Dengue. C. H. Halliday, U. S. Army.
127 An Oral Lesson in Apparently Cured Syphilis. G. I. Jones, U. S. Army.

Interstate Medical Journal, St. Louis

August

128 Lesions of the Mid-Brain, with Special Reference to the Benedict Syndrome. S. E. Jelliffe, New York.
129 Knee-Joint Tuberculosis in Adults. E. W. Ryerson, Chicago.
130 Few Points on the Morbidity and Mortality of the Newly-Born Infant. J. Zahorsky, St. Louis.
131 Estivo-Autumnal Malaria with an Unusual Anemia. L. M. Warfield, Milwaukee.
132 Treatment of Cancer High in the Rectum. C. B. Davis, Chicago.
133 Excision of the Clavicle for Small Round-Celled Sarcoma, in Child of Nine Years. N. B. Carson, St. Louis.
134 One Hundred Cases of Syphilis Treated with Salvarsan. F. C. Edgerton, New York.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

August 5

1 School Health. F. E. Fremantle.
2 *Cancer. C. J. Bond.
3 Diffused Cancer of the Female Mammary and Thoracic Integument. G. T. Beatson.
4 *Toxemia of Uncertain Origin and Its Treatment by Sea-Water Injection. J. C. Maclean and L. de C. Harston.
5 Angina Sine Dolore and Gastric Deflation. H. W. Verdon.
6 Melanotic Sarcoma of the Liver, Secondary to a Melanotic Sarcoma of the Eye Removed by Operation Ten Years Previously. C. H. Lilley.
7 Case of Congenital Hematoma. S. Shelll.

2. **Cancer.**—This paper is an analysis of the conditions under which the new cell characters which we associate with cancer arise in somatic cells; to inquire whether the three conditions which accompany variation and selection among other organisms are also concerned in the evolution of cancer. These are: (1) struggle for existence among cells; (2) cell proliferation; and (3) cell destruction. Bond describes blastomatosis as an adaptive response on the part of individual cells, or cell groups, to environmental change of three kinds: alteration in the stimuli which reach the cell from the outside world; alteration in nutrition; alteration in the activities of the other cells which compose the organism. This adaptive response may be "indirect," the result of variation among the cells exposed to the changed conditions, accompanied by selection of an intercellular kind, or it may be "direct," and the result of a process of variation in the physiologically differentiated parts which compose the individual cell, accompanied by selection of an intracellular kind, in which case it represents a "use acquirement." The new cell characters which so arise may be grouped in two main divisions—one characterized by typical growth, including all the histologic varieties of benign neoplasms from teratoma to neuroma, the other characterized by atypical growth including the malignant types. But between these two groups there are numerous tumors composed of cells presenting transitional characters. Yet, again, the second group, characterized by atypical growth, may be divided into neoplasms composed of cells of epithelial type, and neoplasms composed of cells of connective-tissue type. And between these two groups there are again connecting links, for the malignant tumors which arise from cells of primary mesoblastic and secondary epithelial origin tend to exhibit transitional characters.

Of the two factors concerned in the origin of malignant growth (cell potentiality and environmental influence), environmental influence plays a large part in the genesis of cancer, cell potentiality in the genesis of sarcoma. Of the environmental factors concerned, outside stimuli exert a much larger influence in the genesis of epithelial than of connective-tissue cancer. Bond believes that a comparison of this theory with others at present held shows that cancer, like all "new growth," must be regarded in the light of a response of an adaptive kind on the part of certain cells or cell-groups of varying potentiality, to changes in their environment. It suggests that in epithelial cancer, at any rate, this response takes place under the same conditions as those which are associated with the occurrence of variation and selection among other organisms when exposed to environmental change and where evolution of new characters is taking place, especially in response to changes in the external environment. And the suggestion is therefore made that blastomatosis, including cancer and certain other forms of cell multiplication, takes place under the influence of the same evolutionary factors, namely, variation and selection of the "inter-" or "intra-" cellular kind.

4. **Toxemia of Uncertain Origin.**—The symptoms in this case pointed to some inflammatory infection and possibly ulceration of the bowel, chiefly in the region of the cecum and ascending colon. There were some enlargement and tenderness of the liver. Drugs and vaccine-therapy failed utterly to give relief. Finding that in spite of all treatment the patient was losing ground rapidly, the sea-water injection was given, beginning with 25 c.c. of sea-water (plasma marina), injected under

strict aseptic precaution, in the right scapular region. As it was followed by no discomfort, it was subsequently increased from 25 to 50 c.c., and continued twice weekly for thirty injections. The temperature soon began to fall to normal, but at first after each injection it would fall and then rise again to 100 or therabouts before the next injection was given. This continued for a time until it came down and remained at normal. The patient began to increase in weight. Sleep became natural, although up to that time it had to be induced by hypodermic injections of morphin. The improvement continued, the stools became formed and regular, appetite gradually improved, and she thoroughly enjoyed her meals, and a more liberal diet was given. The apical murmur, previously present, disappeared, as did also the anemic condition. At the end of six weeks she was for the first time able to leave her bed and sit up daily in a chair. Each week she gained on an average a little over half a pound in weight. After each injection she described herself as feeling much stronger, and they seemed to act as a powerful tonic to her general system. Finally, six months after the beginning of the sea-water treatment, she was able to take outdoor exercise and live her ordinary life.

British Medical Journal, London

August 5

8 Complications of Rheumatism in Childhood. F. J. Poynton.
9 Four Cases Illustrative of Certain Points in Psychoanalysis. H. Wingfield.
10 Retinoscopy Without Atropin, and Ocular Headaches. J. A. Wilson.
11 Administrative Control of Tuberculosis. J. Robertson.
12 Sanatoriums. A. E. Lyster.
13 The Tuberculosis Dispensary. R. W. Philip.
14 Tuberculosis and Tuberculin. W. C. Wilkinson.
15 Domestic Hot-Water Supplies as Factor in Production of Lead Poisoning. F. E. Wynne.

Practitioner, London

August

16 Heart Strain, with Remarks on Training and Other Allied Cardiac Conditions. S. West.
17 *Celiac Disease. R. Hutchison.
18 *Abdomino-Pelvic Pain in Women Without Physical Signs of Disease. V. Bonney.
19 Sanatoria, Tuberculosis Dispensaries and the Government Insurance Scheme. F. R. Walters.
20 *Puerperal Septic Thrombophlebitis of the Pelvic Veins. W. B. Bell.
21 Intussusception. A. J. Walton.
22 Sliding Hernia of Sigmoid. W. Rankin.
23 Pulsation in the Neck. W. Broadbent.
24 *Case of Esophagismus. T. M. Tibbetts.
25 Permeating Mastoid Meningitis. J. B. Pike.
26 Treatment of Fistula-in-Ano by Passive Congestion. A. B. Fearnley.
27 Glycerin as an Antiphlogistic. L. Burges.
28 Magic and Medicine. D. McKenzie.

17. Celiac Disease.—Celiac disease is defined by Hutchison as a chronic wasting disease of childhood characterized by chronic diarrhea with large, pale and offensive stools, running a prolonged course with a great tendency to relapses, exhibiting often certain nervous complications, such as weakness of the legs and tetany, and ending either in death or in complete recovery, or in partial recovery with great impairment of growth and development (similar to or identical with the infantilism of Herter). The cause of the disease is obscure. Social surroundings seem to play little if any part in the etiology. Any acute attack of enteritis, whether from infection, poisoning, irritation of undigested food, or exposure to cold, seems able to serve as a starting point of the disease. The disease usually begins insidiously in the second or third year of life. The child is observed to be pale, listless and fretful, and to be losing flesh and strength. If inquiry is made into the state of the stools they will be found to be increased in number, usually about two or three in the twenty-four hours, and still more increased in bulk. They are usually of the consistence of porridge, pale or even quite white in color, and of an extremely offensive odor. Sometimes they contain streaks of visible mucus or blood, and undigested food particles can often be observed in them. The appetite is poor or capricious, and there is often considerable thirst. Physical examination reveals some degree of anemia, with wasting of the subcutaneous tissues and flabbiness of the muscles. The abdomen is distended and tympanitic. The temperature is often slightly elevated at night.

As the disease progresses certain nervous symptoms may become manifest. Chief of these is weakness of the lower extremities, which may be accompanied by loss of the knee-jerks. Attacks of tetany are not uncommon, and there may even be epileptiform convulsions. Edema, especially of the extremities, may occur without any evidence of renal disease, just as it does in other forms of chronic gastro-intestinal disorder in childhood. The mental condition is apt to be peculiar, there being often a high degree of precocity along with a tendency for the child to be unduly interested in his own symptoms, which is most unusual at this age. Sometimes, indeed, they are actual little hypochondriacs, and almost always they are spoilt.

If one makes a post-mortem examination of a fatal case of this disease, nothing at all is found by inspection except some atrophy of the intestinal wall. The condition most apt to simulate celiac disease is abdominal tuberculosis, and it is often extremely difficult to distinguish between them. In celiac disease, however, there are no enlarged glands to be felt and no thickened and rolled-up omentum, nor is there any ascites. A negative Pirquet's test is also of value in the diagnosis. The distinction is rendered still more difficult by reason of the fact that abdominal tuberculosis seems sometimes to supervene on the celiac disease after the latter has lasted some time. The course of the disease is an extremely chronic one, the duration extending to years with intervals of improvement, followed by the most disheartening relapses, which may take place in spite of every care. Complete and permanent recovery, however, may certainly occur. It took place in at least seven out of the sixteen cases which have been under Hutchison's observation, in some of which the disease had lasted for two or even three years. If a fatal result ensues it is usually the consequence of some intercurrent disease, such as bronchopneumonia. When the disease has lasted some time it leads to a retardation of growth, which may leave the child frail and stunted even when the intestinal symptoms have disappeared. In well-marked cases the interference with growth may amount to a condition of true infantilism, such as Herter described. Of this Hutchison has seen two pronounced examples, both of which were fatal. The way in which the arrest of development is brought about has already been discussed.

In the treatment of celiac disease a suitable diet is of the first importance. Owing to the impaired absorption of fats, the amount of fatty food must be greatly curtailed, and as starches are also badly borne these, too, must be avoided, and the diet should consist of raw or underdone meat, raw meat juice and skim-milk (preferably peptonized), gelatin in the form of jellies of different sorts and dextrinized foods. The raw meat and meat juice should form the basis of the dietary, and a child of 4 years may take as much as 6 ounces of the former and 10 of the latter daily. As improvement sets in, a little stale white bread and boiled rice may be added to the diet, as these contain starch in a form in which it is most easily borne. Under this regimen the stools usually decrease in number and amount and improve in color, while abdominal distention is lessened. In the general hygienic treatment great care should be taken to avoid chill. A warm binder should be worn over the abdomen, and the legs, which are very apt to be cold, should be warmly covered; it is sometimes even necessary to wrap them in cotton-wool and bandages. Special precautions should also be taken to avoid chill in bathing the child. Change of air to a bracing sea-side place is of great help, especially when the appetite is defective, and will often start an improvement when the case is "hanging fire." Medicinal treatment is of secondary importance, but opium is always useful. It may be given in doses of 1 minim of the tincture for every year of the child's age, along with bitters and carminatives. It tends greatly to lessen the offensiveness of the stools. If diarrhea be severe nitrate of silver is the most potent astringent. It may be given in doses of 1/6 grain with 1 or 2 drops of dilute nitric acid in a little glycerin and distilled water three times daily, and may be continued for weeks if necessary. Active preparations of pancreas are also of value, especially when the stools contain much unaltered fat.

18. **Abdomino-Pelvic Pain in Women.**—In the treatment of cases of pelvic pain without physical signs Bonney says one should begin with purgatives, for many women go about with an habitually overloaded colon although the bowels are open every day. Ordinary "white mixture" three times a day is as good as anything. Later, when it is assured that the colon is well emptied, the following prescription is used instead:

B.	gm. or c.c.		
Extracti cascaræ sagradæ	4		3i
Magnesii sulphatis	4	or	3i
Tincturæ hyoscyami	2		3ss
Aquam menthæ piperitæ ad	30		3i

One to two tablespoonfuls at night as required.

When flatulence is believed to play some part in the trouble he has found either of the two following very serviceable:

B.	gm. or c.c.		
Potassii bicarbonatis	60		gr. x
Tincturæ zingiberis	60		m x
Spiritus chloroformi	60	or	m x
Infusi rhei	2		m xxx
Infusi gentianæ	30		3i

Sig.: T. d. s.

and

B.	gm. or c.c.		
Extracti aloës	060		gr. i
Essentiæ menthæ piperitæ	20		m iii
Tincturæ capsici	30		mv
Aquam ad	30		3i

Sig.: T. d. s.

The following prescription Bonney finds excellent, especially if gastric symptoms are present as well:

B.	gm. or c.c.		
Bismuthi salicylatis	60		gr. x
Sodii salicylatis	60		gr. x
Spiritus chloroformi	1	or	m xv
Aquam menthæ piperitæ ad	30		3i

Three times a day.

In cases with evident neurosis sedative drugs are indicated, the bromids in particular. He looks on the following mixture as the most useful in cases of abdomino-pelvic pain without physical signs:

B.	gm. or c.c.		
Potassii bromidi	1 30		gr. xx
Spiritus chloroformi	60	or	m x
Infusi cinchonæ	30		3i

Sig.: T. d. s.

A great number of these patients are out of health generally quite apart from their local complaints. To such the administration of ferruginous tonics containing strychnin is always beneficial. Bonney finds that the best results are obtained with the milder preparations of iron such as the ammoniated citrate, because the digestion is usually too disordered to tolerate the more astringent forms. A favorite prescription of his is:

B.	gm. or c.c.		
Ferri ammoniæ citratis	60		gr. x
Liquoris strychninæ	30		m v
Spiritus chloroformi	30	or	m v
Aqua ad	30		3i

Sig.: T. d. s.

20. **Puerperal Septic Thrombo-Phlebitis.**—Bell is fully persuaded that when every patient with septic thrombo-phlebitis of the pelvic veins is operated on in the early stages the mortality will drop to, say, 5 per cent. as against the 60 per cent. of those treated by expectant methods.

24. **Œsophagismus.**—Tibbetts' patient was 59 years old; complained of pains in the knees and shoulders; had an urticarial rash scattered over the body, especially abundant on the face, arms and chest, and also complained of a cough, which, as the chest signs were normal and the fauces rather injected, Tibbetts attributed to pharyngeal catarrh. The temperature was 100 F., and the urine was normal. The patient was kept in bed and a milk diet and salicylates were prescribed. For the next three days there was no material change. On the night of the third day the patient was in great distress. His aspect was that of the gravest anxiety. Every few seconds there were retching efforts almost amounting to convulsions, and from his mouth saliva poured profusely. By gestures and broken speeches he intimated that under the lower part of the sternum there was severe pain, and that he thought he should be suffocated. All attempts to swallow provoked fresh paroxysms. Fifteen years before he had had a similar, but much milder, attack, and from this fact, as well as from the absence of abnormal physical signs at the previous examination and its association with rash and pharyngitis, Tibbetts ventured a favorable prognosis. Poultices were applied to the chest, steam inhalations administered, and a mixture of bismuth and soda prescribed. The saliva and dysphagia continued for five or six hours, both subsiding gradually and simultaneously, and until then the patient had been unable to swallow either milk or medicine.

Next evening all the symptoms returned, and they continued to remit and recur at irregular intervals of from six to twelve hours' duration. So severe were the attacks that the eyelids became suffused and the eyes ecchymosed to the extent that one sees in bad cases of whooping cough, or in prolonged parturition, and in a single attack the saliva lost amounted to ½ pint or more. For the pain during the second and succeeding attacks Tibbetts gave a hypodermic injection of morphin (gr. ¼). This always relieved the symptoms, and sleep usually resulted, lasting for two or three hours. Except at first, the temperature was normal throughout, but the pulse became progressively feebler and more rapid. Such drugs as might be expected to influence the attacks were tried, but, excepting as influenced by the morphin, the attacks of pain, the salivation, and the dysphagia persisted unchecked for over a fortnight. The rash was practically constant throughout. At the end of a fortnight Tibbetts first tried a hypodermic injection of atropin (1/100 gr.), with a view to reducing the ptyalism which had been so marked a feature during each attack. In a few minutes salivation and spasm abated, and in an hour or so the patient was able to take liquid food easily. The injection was repeated in four hours' time and atropin in small doses (liq. atropin, mj.) was further administered orally at intervals of four hours. In less than twenty-four hours the rash had vanished, soon the patient's convalescence became assured, and a month later he resumed his ordinary occupation in which he has been able to continue.

Clinical Journal, London

August 2

29 Some Cases of Anterior Gastrojejunostomy. G. R. Turner.
30 Tetany and Dilatation of the Colon. F. Langmead.

Medical Press and Circular, London

August 9

31 Practical Treatment in Infantile Anemias. L. Tixier.
32 Percussion-Auscultation Diagnosis in Pleuritic Effusions. A. von Koranyi.
33 Asthma, Its Varieties and Treatment. G. A. Gibson.

Annales des Maladies des Org. Génito-Urinaires, Paris

June 1, XXIX, No. 11, pp. 961-1056

34 Kidney with Double Pelvis. (Rein à bassinet double et à uretère incomplètement dédoublé; pyélonéphrite suppurée de la moitié supérieure du rein et du bassinet correspondant.) E. Brucl.
35 Fixation of Kidney by Two Pedunculated Strips of Muscle. (La myo-néphropéxie.) A. Jiano (Bucharest).
36 Operative Cure of Double Firearm Wound of Urethra. Uzac.

June 15, No. 12, pp. 1057-1152

37 *Intravesical Operations for Tumors of the Bladder. J. Doré and L. Croizier.

37. **Endovesical Operations for Tumors.**—Doré and Mock review, with fifty-eight illustrations, the various technics and instruments used in removing tumors in the bladder without incising it, paying special attention to Marion's method. This is only the first installment of the article, which won the Civiale prize last year.

Lyon Chirurgical, Lyons

June, V, No. 6, pp. 545-692

38 *Appendicitis and Traumatism. L. Bérard and P. Vignard.
39 *Roentgenoscopy of Kidney Calculi. (Importance des données radiographiques dans les interventions pour lithiase rénale.) Arcelin.
40 *Torsion of Spermatic Cord. (Volvulus du testicle.) G. Cotte and L. Croizier.
41 Benign Goiter with Malignant Metastases. H. Alamartine and P. Bonnet.
42 Unilateral Hematuric Nephritis. Ronot.

38. **Appendicitis and Traumatism.**—Bérard and Vignard study the clinical and medicolegal aspects of appendicitis following or aggravated by traumatism, thus analyzing twenty-nine cases, the majority previously unpublished.

39. **Roentography with Kidney Calculi.**—Arcelin states that instantaneous exposures are liable to show up the stones much better than longer ones unless the kidney is completely

immobilized. He insists further that the roentographer should always be present at the operation so that he can identify the stones by their shadows and see that none is overlooked. Arcelin gives twenty-six different views of kidney stones to show the various sources of error.

40. **Volvulus of the Testicle.**—The patient was a young man and the true nature of the trouble was not recognized at first, treatment being applied on the diagnosis of acute orchitis. He had had mumps in youth and acute articular rheumatism but there was no history of venereal disease. The first sign of trouble had been a sudden intense pain, with syncope, progressive swelling and tenderness in the region, but there was nothing to indicate general infection. The condition at last compelled an operation which revealed that the spermatic cord had twisted entirely around inside the vaginalis. The torsion was readily reduced but the disturbance in the circulation had been of such long standing that conservative measures were no longer possible.

Presse Médicale, Paris

July 12, XIX, No. 55, pp. 577-584

43 *Mammary Gland and Corpus Luteum. P. Bouin and P. Ancel.

Revue de Chirurgie, Paris

July, XXXI, No. 7, pp. 1-212

44 *Woody Thyroiditis. (Maladie de Riedel.) X. Delore and H. Alamartine.
45 Excretion of Bile in Normal Conditions and After Cholecystectomy. X. Delore and G. Cotte.
46 *Postoperative Intoxication in Echinococcus Disease. (Intoxication hydatique post-opératoire.) F. Dévé. Commenced in No. 5.
47 Snapping Hip Joint. (La hanche à ressort.) L. Heully. Commenced in No. 5.

43. **Relations of the Corpus Luteum and the Mammary Gland.**—Brouin and Ancel sum up their studies of the relations of the corpus luteum and the mammary gland with the statement that the corpus luteum is a gland of internal secretion which governs the development of the mammary gland both during pregnancy and in its absence. In mammals which have no spontaneous ovulation there is normally no corpus luteum except during pregnancy, and the mammary gland develops only during that period. In women and in other mammals with spontaneous ovulation, on the other hand, alternate enlargement and diminution of the mammæ are observed which correspond with the intergestational development of corpora lutea. These mammary crises manifest themselves from the beginning of puberty to the end of sexual life, in the course of the menstrual period in woman and during the heat in animals.

The mammary gland is, therefore, an organ under the influence of the corpus luteum outside of pregnancy and during the first half of gestation. The corpus luteum stimulates growth of the organ, but cannot induce secretion. The latter function is probably due to a hormone introduced into the maternal blood during the latter part of pregnancy. The authors advance the hypothesis that this hormone is the product of a gland which they have discovered in the uterine muscle and to which they give the name "myometrial gland."

44. **Woody Thyroiditis.**—Delore and Alamartine report a case of transformation of the thyroid gland into a hard mass causing serious symptoms from compression. On suspicion of cancer half of the gland was removed but the microscope revealed the woody texture of the thyroid and adjacent tissues which Riedel has described as chronic ligneous strumitis. Their patient succumbed to a fulminating hemorrhage six hours after changing the dressing, four days after the operation. They review thirteen cases on record, including six from Riedel's experience. In only one of the cases was tuberculosis evident, but Leriche and Cotte recently reported a case in which the ligneous thyroiditis was of syphilitic origin and subsided under mercury and iodid. Silatschek and Barjon have each reported a case in which a cure was realized under a course of Roentgen-ray treatment, and this should be advocated in the forms without menacing functional disturbance. This affection should be suspected when the thyroid swells rapidly and becomes extremely hard, early interfering with respiration. The patients are usually between 30 and 40. As it is a purely inflammatory affection, medical measures or partial operations prove effectual, without recurrence. Tracheotomy is useless or difficult; the best operative technic is by resection of a wedge from the isthmus to liberate the trachea.

46. **Postoperative Intoxication in Echinococcus Disease.**—Dévé's attention was called to this subject by the sudden death nineteen hours after operation for a hydatid cyst in the liver in a child of 5½. The urine contained no formaldehyd and this, with the results of extensive experimental research, excluded the possibility of intoxication from the small amount of antiseptic injected. He has found on record twelve cases of mild intoxication after puncture of an echinococcus cyst and fifteen cases of severe symptoms of the kind, with twelve fatal cases and three in which the patients died soon after puncture of a hydatid cyst in the lung. He reviews also thirty-six cases of mild postoperative intoxication of the kind and twenty fatal cases. Study of this material and of the symptoms presented have convinced him that the whole trouble is a manifestation of anaphylaxis. The echinococcus poison may have dialyzed through the walls of the cyst, sensitizing the patient, or this result may have been accomplished by a preceding puncture. As he reviews the symptoms, the analogy with the symptoms of anaphylaxis in experiments on animals and in veterinary practice is striking. In prophylaxis every effort must be made to prevent the escape of the toxic fluid from the cyst into the surrounding tissues—even a minute quantity is liable to set up the anaphylaxis. It may prove possible to immunize the patient before operating, by some preventive anti-anaphylactic treatment, such as Besredka has realized in animals by repeated injection of small amounts of the serum. Certain biologists maintain that anaphylaxis is not strictly specific; if so, general anti-anaphylactic measures might prove effectual. Some have suggested general anesthesia in treatment of anaphylaxis, but Marion's case may be regarded as a failure of chloroform in this respect; possibly general anesthesia with ethyl chlorid or ether might answer better. This treatment seems to be justified in the nervous form of hydatid intoxication with convulsions, whose prognosis is almost inevitably fatal. Chloral might be indicated in such cases.

Semaine Médicale, Paris

July 19, XXXI, No. 29, pp. 337-348

48 Affinity of Poisons for the Nervous System. (La fixation des poisons sur le système nerveux.) G. Guillain and G. Laroche.

Beiträge zur klinischen Chirurgie, Tübingen

June, LXXIII, No. 2, pp. 261-568

49 *Acute Disease of the Pancreas. J. Borelius.
50 *Endothelioma of the Stomach. V. Bagger-Jörgensen.
51 *Typical Injuries in Various Sports. (Typische Sportverletzungen.) G. v. Saar.
52 Amniotic Membrane in Plastic Surgery. (Verwendung von Amnion als plastisches Interpositionsmaterial.) H. Schmers.
53 Operative Cure of External Fistula into Esophagus. (Aeussere Oesophagusfistel am Halse.) v. Hacker.
54 Ethyl Chlorid Anesthesia. (Verwendung des Stadium analgeticum der Aethylchloridnarkose.) D. Kulenkampff.
55 Spur-Formation at the Elbow. (Ueber Spornbildungen am Olecranon.) Krüger.
56 Outcome of Gastroenterostomies for Gastric Ulcer. P. A. Albrecht.

49. **Acute Disease of the Pancreas.**—Borelius reports a case of acute pancreatitis and eleven of hemorrhage in the pancreas; the trouble in the latter was probably not of infectious origin. In the first case the acute suppurative pancreatitis was evidently secondary to the gall-bladder. A gall-stone had become impacted at the papilla of Vater and the pancreatic duct was full of pus, but there were no signs of fat necrosis. No operation was attempted; the case dates from 1899. Only four recovered of the eleven patients with hemorrhage in the pancreas. The ages ranged from 29 to 74; three were obese and five very stout and one was quite thin. Cholelithiasis was evident in three and arteriosclerosis in two. There was a history of trauma in only one case, and a cyst was found in the pancreas in another. Six of the patients belonged to the well-to-do classes and the others were bank messengers or coachmen. Alcoholism was manifest in two cases and four other patients were "high livers." The trouble generally came on suddenly with violent pain, like a perforation peritonitis, but some of the patients said that they had previously had

similar milder attacks which "blew over." The discovery of gall-stones, however, possibly accounted for the previous disturbances. One patient said he had had occasional gall-stone colics but no evidences of cholelithiasis were found at necropsy. The sudden intense pain was sometimes accompanied by vomiting and retching but the most characteristic feature is the shock-like, systemic depression while the abdominal findings do not suggest peritonitis of such severity as to account for it. The heart and kidney functioning suffer intensely and death may occur within a few hours or at once.

50. **Gastric Endothelioma.**—Jørgensen reports a case of successful resection of half of the stomach on account of an endothelioma in a woman of 58. The first symptoms had been noted two or three months before, an occasional sensation of oppression in the epigastrium, but with no connection with the meals, no eructation, vomiting or hemorrhage, but for a year there had been a few days of diarrhea every two or four weeks, and she consulted a physician on account of the intestinal trouble. He found a palpable tumor and she gained several pounds at once after the operation and had been in perfect health during the thirteen months since. Jørgensen states that he has been able to find only four certain cases of gastric endothelioma on record. The description of the microscopic findings in Maylard's and Anderson's case (1910) does not justify the assumption of endothelioma according to his opinion, and neither do the four cases published by Fick, Cignozzi, Aldegarman and Meinel. The only ones he accepts are those of Jungmann, Hansemann, Ssobolew and Donath, one in a woman of 28. Although the tumors were small yet there was extensive metastasis in this and in Donath's case. In one of these and in Jørgensen's own case the tumor was a solitary round growth, in another it was multiple and in Donath's case a flat cake, more like an adenocarcinoma.

51. **Coasting and Snow-Shoe Accidents.**—Saar describes the mechanism and aspect of the various fractures liable in these sports, and says that they throw light on fractures in general, as he explains in detail.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 1, XLI, No. 19, pp. 657-688

57 Definition of Hysteria. Dubois.
58 Sphygmometry. (Die Schulthess'sche Sphygmometrie.) T. Christen.

Deutsches Archiv für klinische Medizin, Leipsic

CIII, Nos. 1-2, pp. 1-198. Last indexed July 1, p. 53

59 *Clinical Picture of Pure "Indurated Endocarditis." (Flächenhafte Endo-Myokardschwiele.) C. Bäumler.
60 Apparatus for Study of Respiratory Interchanges. (Ein nach dem Regnault-Reiset'schen Prinzip für klinische Gaswechseluntersuchungen gebauter modifizierter Benedict'scher Respirationsapparat.) F. Rolly and J. Rosiewicz.
61 Metabolism in Fever and in Convalescence. F. Rolly.
62 Water Content of Human Fat Tissue. (Wassergehalt des menschlichen Fettgewebes.) O. Bozenraad.
63 *Treatment of Obesity by Restriction to Milk. (Entfettung durch reine Milchkuren.) L. Jacob.
64 Comparative Pathology of Paroxysmal Hemoglobinuria. F. Meyer-Betz.
65 *Relations Between and Means to Prevent Degeneration of the Liver and Pancreatic Fat Tissue Necrosis. (Beziehungen zwischen Leberdegenerationen und Pankreasfettgewebsnekrose an Tieren mit Eck'scher Fistel und über die Möglichkeit ihrer Verhütung.) F. Fischler.
66 *Determination and Proportion of Epinephrin in Human Blood. (Adrenalinnachweis und Adrenalingehalt des menschlichen Blutes.) E. Bröking and P. Trendelenburg.
67 The Electric Reaction of Degeneration. (Ueber die Umkehr des Zuckungsgesetzes bei der Entartungsreaktion.) D. H. Wiener.
68 Metabolism in Fever. (Zur Frage des Stoff- und Kraftwechsels im Fieber.) H. Senator and E. Grafe.

59. **Wall Endocarditis.**—Bäumler gives an analytic study of the four cases of this kind which he has encountered and compares them with similar ones on record. Among the various forms which strips of induration (*Schwielen*) in the endocardium and myocardium may assume, the form known as chronic wall endocarditis occurs almost exclusively in the left ventricle and it may develop without any trouble in the valves. Although the changes in the wall may be severe, yet the pulse may persist quite normal for years and the whole affection run a latent course. An acute commencement may be surmised but seldom can be proved. The principal manifestation of wall endocarditis is the dilatation of the left ventricle and development of a heart aneurysm, located mainly in the apex region. Extensive arteriosclerosis and chronic nephritis may be entirely lacking although they are otherwise so frequent with indurations in the heart. When compensation begins to fail, symptoms of cardiac insufficiency may be observed (dyspnea, cardiac asthma, stasis, relative mitral insufficiency, hydrops and albuminuria). But these symptoms can be made to disappear again and again under appropriate treatment. The deterioration of the left ventricle may be manifested—even without signs of cardiac insufficiency or after they have disappeared—by the attenuation of the first sound at the apex and by considerable weakening or total absence of the apex beat. Thrombi may develop in the spaces between the trabeculæ even without the development of an actual aneurysm. It sometimes happens also that thrombi may form in the right heart, owing to the insufficiency of the left ventricle or under the influence of some infection, and infarcts may develop from embolism in the lungs. According to the site and progress of the indurations the conducting system may become impaired. In a number of such cases the pulse became very slow but there was no lasting irregularity of the pulse-rate in Bäumler's cases and in a number of others on record of myocardium indurations. The prognosis becomes unfavorable when symptoms of cardiac insufficiency begin to manifest themselves. In quite a number of such cases in the literature sudden death occurred, sometimes without any preceding symptoms on the part of the heart.

63. **Treatment of Obesity by Restriction to Milk.**—Jacob reports eight additional cases of obesity in which the metabolic findings are tabulated during a course of exclusively milk diet at Moritz' medical clinic at Strasburg. These findings and the experiences with a large number of others all confirm the advantages of the strict milk diet in treatment of obesity in many cases. The simplicity of the method, its prompt efficacy while the patients have their appetite appeased and feel well, although the diet is so far below their normal needs—all these factors cooperate in the advantages of this method of reducing obesity. No by-effects or inconveniences have been observed with it. The deficit of protein does not seem to do any harm to the patients under the circumstances.

66. **Determination of Proportion of Epinephrin in the Blood.**—Bröking and Trendelenburg present evidence to show that epinephrin is present in normal blood in a proportion of about 1 to 2,500,000 and that this proportion is doubled and quadrupled in true exophthalmic goiter. In arteriosclerosis, in pregnant women and parturients the proportion persists normal while in chronic nephritis with arterial hypertension it is a little subnormal. They have devised a method for estimating the proportion in the blood which, they state, has proved constantly reliable. The principle of the new method of examination is to pass the blood through the vascular system of the frog kept functioning with Ringer's solution. The frog reacts with a vasoconstriction to epinephrin, and its presence is thus determined. The Ringer's solution is forced into the abdominal aorta of the frog whence it passes through the femoral arteries in the legs and out again through the femoral veins into the abdominal vein whence it passes into a glass cannula inserted in this vein, from which the fluid drips in a constant tempo. The drops automatically record themselves on a reviving drum. A curve of the drops is given showing how when epinephrin or blood containing epinephrin is added to the solution being forced into the abdominal aorta, vasoconstriction at once follows and it is plainly shown by the longer intervals between the drops as registered on the drum. This frog-flushing method has the advantage over other technics that it works physiologically; the epinephrin acts on the nerve terminals of the muscle cells in the vessels—its normal mode of action. The test is so sensitive, at least during the summer, that it reveals even minute proportions of epinephrin, while the same specimen of serum can be used over and over again even when it has commenced to putrefy. The vasoconstriction reaction seems to be specific for epinephrin; none of the numerous other substances tested give this vasoconstriction reaction in the same way and none except in a hundred or thousand-fold concentration, and the vasoconstriction is not so intense and does not subside so promptly.

Therapie der Gegenwart, Berlin

July, LII, No. 7, pp. 289-336

69 Predisposition to Infectious Disease in Children. (Ueber kombinierte Krankheitsbereitschaften oder Diathesen im Kindesalter.) M. Pfaundler. (Continued.)
70 *Diagnosis and Treatment of Perforated Gastric Ulcer. (Diagnose und Therapie des perforierten Magengeschwürs.) R. Mühsam.

70. Perforated Gastric Ulcer.—Mühsam remarks that there is comparatively little difficulty in diagnosing perforation of a gastric ulcer when there has been a history of stomach disturbances, nausea, oppression independent of the intake of food and acid eructations, even possibly years before. The aspect suggests peritoneal shock; a period of improvement may follow this before the paralysis of the intestines and peritonitis follow. He has found the blood-count of great assistance in confirming the diagnosis; the leukocytes generally run up to 12,000 or 30,000. The Arneth formula is also instructive. The more infectious the stomach content, the greater the danger of progressive peritonitis and the more the body summons its reserves to combat the infection, so that the qualitative changes in the blood-picture with perforated gastric ulcer are even more instructive than the quantitative. He cites some typical cases to illustrate this. In one case a man of 38 was sent to the hospital with the diagnosis of perforated gastric ulcer. He had had occasional mild stomach trouble previously and there was a history of syphilis twelve years before. The pulse was 37.92 C. (100 F.) and the leukocyte-count normal, as also the pupil reflex and the knee-jerk. On the basis of the normal leukocyte-count Mühsam differentiated the trouble as a tabetic gastric crisis and the course of the case confirmed this assumption. In another case a young man with articular rheumatism suddenly developed symptoms suggesting perforation of the stomach, with fever, high pulse and 16,000 leukocytes, but a prompt operation failed to disclose the slightest cause for the peritonitis and the young man soon recovered. In Mühsam's last twelve cases of operative treatment of gastric ulcer, only two of the patients succumbed, while nine died of a preceding series of twelve. His mortality has thus dropped from 75 to 16.6 per cent. He believes that the best means for combating the shock are to close the perforated ulcer and clean out the abdominal cavity, so he operates, if at all, as soon as the diagnosis is certain. As the perforation is so high, the abdominal cavity is more liable to be extensively contaminated than with perforation lower down.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXVIII, No. 2, pp. 261-589. Last indexed June 3, p. 1696

71 Combined Malformations of Urinary and Genital Organs in Women. (Kombinierte Missbildungen des Harn- und Geschlechtsapparates beim Weibe.) M. Bolaffio.
72 Chorio-Epithelioma. (Zur Klinik und Histologie des Chorionepithelioms, nebst anatomischen Untersuchungen über Ovarialveränderungen.) F. Heimann.
73 Pubiotomy and Suprasymphyseal Cesarean Section. R. Roemer.
74 Bacteriology and Local Treatment of Febrile Abortions. M. Traugott.
75 The Ash of Ovaries. (Aschenbestandteile der Ovarien.) W. Benthin.
76 Ovarian Endothelioma. (Tubulöse Endothelialgeschwulst im Ovarium.) E. Kraus.
77 Histology of Metastatic Ovarian Carcinoma. H. Küster.
78 Radical Operation for Pubiotomy Hernia and Suture of the Bones. (Ueber die Radikaloperation der Hebosteotomiehernie und die Knochennaht der Diastase.) S. G. Luenberger.
79 Retro-Uterine Hematocele. (Fall von Haematocele retro-uterina, bedingt durch Follikelblutung aus einem kleincystisch degenerierten Ovar.) A. F. v. Winiwarter.
80 *Management of the Arms with Breech Delivery. (Ungünstige Armverlagerungen bei Steissgeburten infolge von Ziehen, Drehen, Hebeln am Rumpfe und ihr "Redressement" durch entsprechende Gegenbewegungen.) H. Sellheim.
81 Gas Bacillus in Puerperal Infection. (Der E. Fraenkelsche Gasbazillus in seiner Bedeutung für die puerperale Infektion.) T. Heynemann.
82 Treatment of Injury of Intestine and Mesentery, Especially of the Sigmoid Flexure, in Course of Obstetric and Gynecologic Operations. I. I. Grekow.
83 New Technic for Cesarean Section. (Ueber Sectio caesarea abdominalis inferior.) F. Heimann.
84 *Hemostasis by Momburg's Belt. (Die Momburgsche Blutleere.) A. Steiger.

80. Management of the Arms with Breech Presentation.—Sellheim discusses the mechanism of normal breech presentation, the deviations from normal and the ways in which to restore normal conditions, especially by "rotation," illustrating the various points emphasized. The various maneuvers to alter the presentation may bring the arms into very unfavorable positions and systematic rotation, opposite to the direction of physiologic freedom of movement, is able, he says, to bring an arm thrown up over the head down toward the shoulder with other advantages. He does not hesitate to state that rotation deserves to rank high not only as a measure to prepare and aid and render delivery easier but sometimes as the only means to correct the very unfavorable position of the arms.

84. Hemostasis by Momburg's Belt Constriction.—Steiger has found records of 163 cases in which waist-line constriction has been used to arrest hemorrhage, including sixty-six obstetric cases. In three cases diarrhea followed, showing some irritation of the intestines, and in one case there was paralysis of the rectum for which, however, the constriction should not be held responsible. In one of 160 cases in the literature there was disturbance in micturition afterward. Complications on the part of the lungs were observed in three cases, and fatal arrest of respiration in one case; but the operator does not venture to decide whether the general anesthesia or the constriction should be incriminated for the fatality. In the sixty-six obstetric cases the method proved a brilliant success in fifty-two, while it failed constantly in nine cases, all reported by a single obstetrician. It is one of the few methods at our disposal for arresting hemorrhage, Steiger adds, in which there need be no danger of infecting the patient.

Wiener Medizinische Wochenschrift, Vienna

July 22, IX, No. 30, pp. 1910-1927

85 Congenital Cranial Defects. (Luckenschädel.) C. Hochsinger.
86 *Diphtheria Antitoxin in Erysipelas. O. Polak.
87 Apparatus (Patellar-Reflectometer) for Measuring Knee Reflex. J. Kitaj.
88 Analogy of Ergotism and Tetany. A. Fuchs.
89 Determination of Functional Activity of the Heart. R. Kleissel.

86. Diphtheria Antitoxin in Erysipelas.—Polak reports forty-three cases of erysipelas in which diphtheria antitoxin was used for therapeutic purposes. The result on the whole was a most satisfactory one although the author points out that good results are obtained with every treatment of erysipelas. The temperature falls within forty-eight hours after the injection of the serum and ends by crisis in a few hours. The general condition of the patient is very much improved; the local symptoms of the disease are rapidly lessened in severity and within a few days the patient is well. In complicated cases the further progress of the disease after the injection was not such a favorable one. The author believes that this treatment does much to prevent recurrences. The serum was also used in other streptococcic infections but the result was not such as to warrant further trial. Death occurred in five cases as a result of sepsis, pneumonia and meningitis.

Wiener klinische Wochenschrift, Vienna

July 27, XXIV, No. 30, pp. 1079-1098

90 *Nature of Rigor Mortis. O. v. Fürth and E. Lenk.
91 *Sputum Filtrate in Treatment of Pulmonary Tuberculosis. F. Passini and H. Wittgenstein.
92 *Blood-Alkali Bouillon—An Elective Culture Medium for the Cholera Vibrio. R. Kraus, Z. Zia and J. v. Subrzicky.
93 Symptomatology of Diseases of the Second Sacral Segment. Neuritis Due to Lead, Alcohol, Zinc and Ether. A. v. Sarbó.
94 *Sterilization of Rubber Gloves. E. Juvara and Jianu.

August 3, XXIV, No. 31, pp. 1115-1133

95 Chemistry of Tuberculin. T. Pfeiffer, H. Trunk and J. Leyacker.
96 *Action of Thyroid Extracts. L. Haskovec.
97 Acute Leukemia and Diabetes Insipidus in Status Thymico-hypoplasticus. R. Lenk.
98 Trichophiar Muscle Crises in Tabes Dorsalis. A. Neumann.

90. Rigor Mortis.—The authors agree with other observers that rigor mortis is caused by a swelling of the muscle fibers due to the retention of acids in excess in the muscles. This swelling of the muscle elements leads to shortening of the muscle fibers and contraction of the muscles. Hitherto it has been quite generally believed that rigor mortis was caused by coagulation of albuminous substances in the muscles. Furthermore, when coagulation of these albuminous substances contained in the plasma does occur the muscles relax. The post mortem changes take place in the muscles and the continuous deposition of acids leads to this coagulation. The experiments performed by the authors which lead them to formulate these conclusions are reported in full.

91. **Treating Tuberculosis with Patient's Sputum.**—After having determined experimentally, in the case of animals, the harmlessness of injecting intramuscularly, intraperitoneally and intravenously the filtrate of tuberculosis sputum, the authors proceeded to make use of the procedure clinically. The sputum of the patient was filtered and toulol added to the filtrate. This mixture was injected subcutaneously, only 2 c.c. being given at the commencement of the treatment. A second injection was not given if a reaction followed the first until four days after the subsidence of the reaction. A large amount was injected the second time. The reaction following these injections is at first local in character, consisting in reddening of the skin and deep-seated swelling. The râles in the lungs are increased in intensity. The general reaction consists in slight elevation of the temperature, as occurs when tuberculin is injected. This elevation is first noted in from four to six hours after the injection and does not exceed 2 degrees. It subsides both suddenly and gradually in different cases. The patient complains of lassitude, headache and expectoration is increased. After these symptoms have subsided the patient feels better, eats better and coughs less. In several cases there was a distinct gain in weight after four injections, which had not previously been noted with other treatment. Only such patients as did not respond to tuberculin treatment were treated by sputum filtrate injections.

92. **Culture Medium for Differentiating Cholera Vibrios.**—For the purpose of differentiating the cholera vibrio from the colon bacillus, the authors made use of a blood-alkali bouillon which was really an adaptation of Deiudonne's blood-alkali agar. To 100 c.c. of neutral bouillon are added 25 c.c. of blood-alkali albumin. The mixture is exposed to a temperature of 50 C. for three hours and 37 C. for twenty-four hours. It is important not to use the mixture too soon because when this was done the results were invariably unsatisfactory. The cholera vibrio grows well on the medium in pure culture. The colon bacillus does not grow at all. Therefore, this medium is particularly suited for securing the cholera organism from the stool.

94. **Sterilizing Rubber Gloves.**—The authors subjected rubber gloves that had been infected with various organisms to sterilization in the autoclave at a temperature of 100 C. for thirty minutes, with the following results: five pairs of gloves infected with streptococci remained sterile. Five pairs infected with staphylococci also remained sterile. Of four pairs infected with the *B. pyocyaneus*, three remained sterile, the fourth pair showed a growth of pyocyaneus. In the case of six pairs infected with *B. subtilis*, sterilization proved ineffective. The same was true of five pairs infected with *B. mesentericus vulgatus*. It is apparent, then, that a thirty minute exposure to 100 C. in the autoclave without pressure is not sufficient to effect sterilization. In a second series of experiments, infected rubber gloves were exposed to a temperature of 120 C. with a pressure of 1 atmosphere for thirty minutes. All the gloves remained sterile.

96. **Action of Thyroid Extract.**—The action of thyroid extract was very thoroughly studied by the author and he reaches the conclusion that it has a characteristic effect on the heart muscle and cardiac nervous apparatus. In the case of the dog, this is manifested by lowered blood-pressure and increased frequency of pulse-beat. The former is the result of direct weakening of the heart action by vasodilation. The acceleration is believed to be due to the irritation of the accelerating nerve apparatus. Further, a small dose of alcohol disturbs the thyroid acceleration and depression. A large dose increases the depressor action of thyreoiodin. The author cautions against the indiscriminate use of thyroid extract, particularly in combinations with other substances.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 22, XXXII, No. 75, pp. 795-802

99 *Simplified Tuberculin Skin Test. (A proposito del mio metodo speciale di reazione tubercolinica.) F. Barabaschi.

July 2, XXXII, No. 79, pp. 827-842

100 Normal Urine. F. Bottazzi.
101 When Should Patients Get Up After a Laparotomy? (Sul soggiorno a letto degli operati all'addome.) A. Cosentino.

July 4, XXXII, No. 80, pp. 843-850

102 Diagnostic Value of Blood-Count in Helminthiasis with Symptoms Suggesting Meningitis. A. Mazzuoli.

July 6, No. 81, pp. 851-858

103 Gravity of Burns on Infants. (Intorno alle scottature nei bambini.) R. Sabelli.

July 9, No. 82, pp. 859-874

104 Medicolegal Questions in Industrial Lesions. (Lavoro generico oppure lavoro specifico nella valutazione medico-legale della lesioni da infortunio?) L. Borri.
105 Biologic Reactions in Pellagra. M. V. Carletti.

99. **Simplified Tuberculin Skin Test.**—Barabaschi rubs the region with alcohol until the skin is red. Then in the center of this area he spreads a thin layer of tuberculin without rubbing it in and lets it dry. In 114 cases in which he has applied this test there never was any general reaction, while the local reaction seemed to be a reliable index of an active tuberculous process even when the process was in its incipiency. He gives the details of eighty-nine cases to show the reliability of the test. His previous communication was summarized in THE JOURNAL, Sept. 10, 1910, page 977.

Policlinico, Rome

June, XVIII, Surgical Section No. 6, pp. 241-288

106 *Origin of Neoplasms. (Sui recenti contributi alla dottrina dei neoplasmi.) G. Fichera. Commenced in No. 3.
107 Rat Cancer. (Sul potere oncolitico nei ratti.) S. Gussio.
108 Branchial Cysts. (Su talune cisti congenite del collo di origine branchiale e parabranchiale.) O. Cignozzi.
109 Experimental Research on Fixation of the Intestine. (Sulla enteropessia.) G. Razzaboni.

June, Medical Section No. 6, pp. 241-284

110 Chronic Hemolytic Jaundice. (Nuovo contributo allo studio degli itteri cronici emolitici.) E. Marchiafava and A. Nazari.
111 Functioning of the Liver in Tuberculosis in Children. (Studio della funzionalita epatica nella tuberculosi infantile.) A. Longo.

July 16, XVIII, No. 29, pp. 905-936

112 Staphylococcus Septicemia and Meningitic Syndrome from Pure Hyperemia. Recovery. A. Fedeli.

July, Medical Section No. 7, pp. 285-332

113 Percussion of the Spine in Diagnosis of Compression of the Trachea. (Nuovo segno fisico di compressione tracheale ricavato dalla percussione delle vertebre.) G. Stradiotti.
114 Pseudochylous Ascites. M. Barberio.
115 Blindness of Mental Origin. (Caso di cecita psichica.) G. Francesco. Commenced in No. 5.

106. **Origin of Neoplasms.**—Fichera here concludes the report of his research in this line which was mentioned in THE JOURNAL, June 10, 1911, page 1769. The communication issues from the surgical clinic at Rome in charge of Durante, and is the sixteenth Fichera has published on the origin of cancer as a result of premature senility of the cells, and treatment by what he calls histogenous chemotherapy; that is, with embryonal tissues as the opposite extreme. Besides the facts and experiences cited by Pearce Gould, there are others which he claims prove his statements that study of the efficiency of unaided Nature to effect a cure in certain cases of cancer is the only means to learn how to cure malignant disease. Several investigators have confirmed the destructive action on tumor cells of normal serum while the tumor cells do not seem to be influenced by even prolonged contact with the serum from persons with malignant disease. Gussio of Rome has found that fragments of rat sarcomas kept a day in blood-serum at body temperature or implanted in the peritoneal cavity of sound rats never take root and grow, while they do take root when the serum in which the scraps were kept had been taken from a cancer rat. Study of the variations in the tumor cell-destroying property of the serum may give interesting results, especially systematic investigation of the serum of roentgenologists who are so often victims of cancer. This property declines toward the end of a pregnancy, which confirms anew the principle that active development of fetal or neoplastic tissues is always accompanied by a lower cytolytic index in the host. Fichera cites Hochenegg's experiences with cancers developing at once after a pregnancy, and Fichera has encountered a case in which a cancer developed immediately after a pregnancy but was successfully removed. Seven years later another cancer developed under similar conditions after another pregnancy. He sums up his theory as the tumor-producing loss of balance and cell-producing chemotherapy,

equilibrio oncogeno e chematerapia istogena. The extract he uses is made from two to six months' fetuses from the maternity, triturated and placed in salt water until autolysis is complete.

Riforma Medica, Naples

July 10, XXVII, No. 28, pp. 757-784

116 Case of Umbilical Adenoma of Gastric Structure. G. Negroni.

Hospitalstidende, Copenhagen

May 31, LIV, No. 22, pp. 585-616

117 Comparative Mortality of Boys and Girls. (Dødsaarsagernes Forhold hos de to Køn indenfor Barnealderen.) H. P. T. Ørum.

118 Treatment of Scabies. (Om Fnatbehandling.) H. Petersen.

June 7, No. 23, pp. 617-648

119 •Technic for Operative Treatment of Peritonitis. L. Kraft.

June 14, No. 24, pp. 649-680

120 •Pathogenesis of Glaucoma. J. Bjerrum.

119. **Treatment of Peritonitis.**—Kraft is an advocate of suturing the peritoneum at once after having swabbed out all effusion or rinsed the cavity clean, and his series of parallel cases with and without drainage apparently confirm the superiority of this technic. It is not applicable, of course, with a gangrenous process or suppuration in the connective tissue below the peritoneum. But when it is possible to suture the peritoneum at once, normal peristalsis generally starts up again while a drain checks it. Active peristalsis promotes absorption of any peritoneal effusion and the bowels resume normal functioning, all of which is liable to be lacking when the peritoneum is drained.

120. **Glaucoma.**—Bjerrum presents evidence to sustain the assumption that glaucoma is not exclusively merely exaggerated intra-ocular pressure but that an irritative process is involved besides. This irritation seems to affect essentially the ciliary body. Excessive secretion follows, and this hypersecretion is the cause of excessive intra-ocular pressure. The primary irritation is probably of a toxic nature. He cites some typical cases to show this connection and the lesions encountered.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

PATHOLOGIC TECHNIC. A Practical Manual for Workers in Pathologic Histology and Bacteriology, Including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By Frank Burr Mallory, A.M., M.D., Associate Professor of Pathology, Harvard University Medical School, and James Homer Wright, A.M., M.D., S.D., Director of the Pathological Laboratory of the Massachusetts General Hospital. Fifth Edition. Cloth. Price, $3. Pp. 507, with 162 illustrations. Philadelphia: W. B. Saunders Co., 1911.

INFECTION, IMMUNITY AND SERUM THERAPY IN RELATION TO THE INFECTIOUS DISEASES OF MAN. By H. T. Ricketts, M.D., Late Assistant Professor of Pathology, University of Chicago. Second Edition. Revised and Enlarged by the Author and by George F. Dick, M.D., Instructor in Pathology, University of Chicago, with Preface by Ludvig Hektoen, M.D. Cloth. Price, $2. Pp. 785. Chicago: American Medical Association, 1911.

MANUAL OF THE DISEASES OF THE EYE. For Students and General Practitioners. By Charles H. May, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Seventh Edition. Cloth. Price, $2 net. Pp. 407, with 362 illustrations. New York: William Wood & Co., 1911.

VETERINARY BACTERIOLOGY. A Treatise on the Bacteria, Yeasts, Molds and Pathogenic for Domestic Animals. By Robert Earle Buchanan, Ph.D., Professor of Bacteriology in the Iowa State College of Agriculture and Mechanical Arts, Division of Veterinary Medicine. Cloth. Price, $3. Pp. 516, with 214 illustrations. Philadelphia: W. B. Saunders, 1911.

SIXTIETH ANNUAL REPORT OF MERCY HOSPITAL, CHICAGO. Jan. 1, 1910. Covering the Period from Jan. 1 to Dec. 31, 1909. Conducted by the Sisters of Mercy, Under the Patronage of the Most Reverend Archbishop of Chicago. Prairie Avenue and Twenty-Sixth Street, Chicago. Paper. Pp. 95, with illustrations.

LAWS PASSED AT THE TWELFTH SESSION OF THE LEGISLATIVE ASSEMBLY OF THE STATE OF NORTH DAKOTA. Begun and Held at Bismarck, the Capital of Said State on Tuesday, the Third Day of January, A. D. 1911, and Concluding March Third, 1911. Cloth. Pp. 599. P. D. Norton, Secretary, Bismarck.

ANNUAL REPORT OF THE LYNN TUBERCULOSIS ASSOCIATION. A Brief Summary of the Work that Has Been Done the Past Year Among the Tuberculosis Cases at Lynn. March 1, 1910, to March 1, 1911. Paper Pp. 17, with illustrations.

SEVENTEENTH ANNUAL REPORT NEW ENGLAND BAPTIST HOSPITAL. With the President's Address, Reports of Officers and Statistics of the Hospital, to which is Added the Report and List of Officers of the Woman's Auxiliary. For the Year Ending Dec. 31, 1910. Paper. Pp. 30, with illustrations.

TWELFTH BIENNIAL REPORT OF ST. MARGARET'S HOSPITAL OF KANSAS CITY, KAN. Under the Charge of the Sisters of the Poor of Saint Francis. For the Years 1909 and 1910. Paper. Pp. 18.

BY-LAWS OF THE EPISCOPAL EYE, EAR AND THROAT HOSPITAL, Washington, D. C. Rules and Regulations. Copy of Charter of Jan. 18, 1897. Revised to May, 1908. Paper. Pp. 35.

FOURTEENTH ANNUAL REPORT OF THE EPISCOPAL EYE, EAR AND THROAT HOSPITAL, 1147 Fifteenth Street, Washington, D. C. For the Year 1910. Paper. Pp. 38, with illustrations.

HIERONYMUS FRACASTOR'S SYPHILIS from the Original Latin. A Translation in Prose of Fracastor's Immortal Poem. Cloth. Price, $2. Pp. 58. St. Louis: The Philmar Co., 1911.

A MEDICAL HISTORY OF THE STATE OF INDIANA. By G. W. H. Kemper, M.D. Cloth. Price, $2.50. Pp. 393, with illustrations. Chicago: American Medical Association, 1911.

SIXTY-FIRST ANNUAL REPORT OF THE CHICAGO ORPHAN ASYLUM, 5120 South Park Avenue. For the Year Ending Dec. 1, 1910. Incorporated Nov. 5, 1849. Paper. Pp. 40.

REPORT OF THE NORTH SHORE BABIES' HOSPITAL, SALEM, MASS. For the Year 1910. Incorporated in 1905. Paper. Pp. 26, with illustrations.

ANNUAL REPORT OF THE HEALTH DEPARTMENT OF THE CITY OF RICHMOND, VA. For the Year Ending Dec. 31, 1910. Paper. Pp. 149.

FIRST ANNUAL REPORT OF THE PROVIDENCE CITY HOSPITAL. For the Year Ending Dec. 31, 1910. Paper. Pp. 58.

New Patents

New Patents of Interest to Physicians

987,122. Prescription file. Sterak G. Eghan, Ogden, Utah.
987,133. Obtaining lecithin, lecith-albumin and their by-products out of raw material containing lecithin. Josef Habermann and R. Ehrenfeld, Brunn, Austria-Hungary.
987,375. Making nitrogen-oxygen. Karl Kaiser, Wilmersdorf (near Berlin), Germany.
987,147. Manufacture of carbonic oxid. Oscar Loiseau, Sclaigneaux, Belgium.
987,497. Adjustable crutch. Fred E. Shadell and F. W. Cassidy, Philadelphia.
987,189. Operating table for use of physicians and surgeons. Bernard D. Thorner, New York.
987,658. Electric heater and sterilizer. Johann G. Wallmann, Oakland, Cal.
987,204. Inhaler. James Wilkie, Detroit.
987,276. Machine for holding and dispensing soda-water straws. Roy J. Woodbury, Fulton County, Georgia.
986,178. Disinfecting device. Theodor Druxbach, Hoboken, N. J.
988,082. Pill machine. Frank M. Edwards, Portsmouth, Ohio.
987,805. Metabolizer. John von der Kammer, Washington, D. C.
987,893. Artificial limb. Henry L. Lawrence, New York.
988,120. Dilator. John B. Lott, Anderson, Ind.
987,902. Apparatus for producing ozone. Clifford D. Meeker, East Orange, N. J.
988,140. Cutting and cauterizing device. Stephen J. Phillips, Glencoe West, South Australia, Australia.
987,910. Syringe. Virginia W. Piper, Jamestown, N. Y.
988,031. Means for introducing microbe cultures into bottles or other vessels. Pierre N. E. Remy, Paris, France.
988,036. Eye-testing machine. Joseph Savoie, Central Falls, R. I.
987,749. Clinical thermometer casing. Ralph F. Schneider, New York.
988,057. Toy and lung tester. Wilhelm Zolper, Wilmington, Del.
988,701. Perfume vending machine. Windred C. Finn, Bagnall, Mich.
988,939. Surgical forceps. William H. Hudson, Montgomery, Ala.
988,352. Inhaler. James D. Kerr, Greens Fork, Ind.
988,733. Formaldehyd compound and making same. Wilhelm Osborne, Munich, Germany.
989,322. Disinfecting composition. Oscar Bernheimer, Vienna, Austria-Hungary.
989,234. Surgical needle. Cleveland G. Davis, Manistee, Mich.
989,137. Drying apparatus for alimentary pastes. Giovanni Falchi, Biella, Italy.
989,141. Pasteurizing apparatus. Frederick Getteiman, Milwaukee, Wis.
989,255. Surgical instrument for cutting bandages. Otto Hasselmann, Wiesbaden, Germany.
989,012. Outdoor sleeping apartment. Jennie Hoyt, Santa Paula, Cal.
989,526. Artificial limb. William G. Kelly, Los Angeles, Cal.
989,019. Fumigator. Lorenzo S. Livingston, Johnstown, Pa.
989,178. Pill-making machine. Jesse C. Morgan, Cliffside Park, N. J.
989,189. Making diabetic bread. August Pfeffer, Ulm, Germany.
989,337. Apparatus for the manufacture of sulphuric acid. Otto Proeiss, Kansas City, Mo.
989,463. Crutch. Percy R. Wilde, Bath, England.
989,550. Vaginal syringe. David L. Aber, Pittsburgh.
990,206. Foot-warming attachment for electrothermal garments. Phyllis Charles, Portland, Ore.
990,116. Dehydrating sodium sulphate crystals. John Davis, Laramie, Wyo.
989,839. Ear irrigating device. Edmund P. Fowler, New York.
989,621. Ice bag. Virginia C. Madigan, Columbus, Ohio.
990,006. Tip for canes or crutches. Joseph H. Reading, Chicago.
989,875. Invalid bed. Mary J. Reiff, Los Angeles, Cal.
989,651. Manufacture of camphor. Jacob Schmitz and G. Stalmann, Dusseldorf, Germany.